

Agricultural Transition in Scotland: first steps towards our national policy

Analysis of consultation responses

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Executive Summary

A consultation on 'Agricultural Transition – First Steps toward Our National Policy' ran from 25 August to 17 November 2021. In total, 314 responses were received. The consultation provided an opportunity for the Scottish Government to learn from stakeholders' perspectives, expertise and experience as Scotland moves towards a Just Transition of the agricultural sector.

Baselining

The vast majority of respondents (85%) agreed that agricultural businesses who receive financial support should be required to undertake baseline data collection, and 83% agreed that data should be collated nationally. This was considered essential to get a full and accurate overview of the sector's current status, and to have a clear national picture to monitor future progress and understand changes taking place. Data collection was also viewed as an important way to drive action at a farm level and nationally, and a valuable tool for policy development. There were repeated calls for straightforward data collection which reflects the diversity of farm types, and for training and guidance for farmers on how to collect and use the data.

Capital funding

Almost two thirds (64%) disagreed with only funding capital items which have a clear link to reducing emissions. Respondents were clear that there should be capital funding for items which support wider environmental improvement, and not solely for items which reduce greenhouse gases. This included items to improve biodiversity, land, soil and crop management. Many questioned how a clear link to reducing emissions would be defined and measured. Capital funding was also considered beneficial to improving food production and food security, and several called for funds to boost productivity, efficiency, and profits, noting gains in these areas could lead to reduced greenhouse gases. Match funding was seen to encourage businesses to grow and develop in sustainable ways, accelerate the adoption of new technologies, improve efficiency and therefore help realise environmental policy objectives. However, several felt the level of match funding requested of businesses should be based on the extent of public benefit or business gain.

Biodiversity and sequestration

Nine out of ten (89%) agreed that farms and crofts should be incentivised to undertake actions which enhance biodiversity; many gave specific and detailed suggestions for measures farmers could take to create or maintain wildlife habitats. Views were mixed on the role of forestry, grazing and livestock numbers in carbon sequestration, but there was clear support for the protection of peatland. Many called for more planting of woodland and hedgerows, or noted the importance of an agroforestry approach or thoughtfully integrating trees into land use. However, there were concerns over excessive or blanket plantations, particularly of non-native or coniferous trees. Another common theme was the need for a joined-up approach to land use planning.

Just Transition

Commercial benefits, sustainable food production and environmental benefits were the most commonly identified opportunities for the sector from a Just Transition. Many thought

implementing sustainable practices could enhance profitability by enabling farms to charge a premium for goods produced to high environmental and animal welfare standards. Many noted that farm businesses have a crucial role in ensuring sustainable food production and can contribute to enhanced biodiversity, reduced greenhouse gases, cleaner water, more pleasant landscapes and climate change mitigation more widely. The most frequently mentioned challenge was the financial cost of a Just Transition to net zero. Ingrained or established attitudes and practices and lack of knowledge and skills in the sector were also identified.

Productivity

Support for incentivising targeted farm plans was the most common theme in relation to improving productivity. However, there was uncertainty about the definition of productivity; respondents were unsure if productivity was an indicator of profitability, higher production figures, or if it could encompass environmental impact. Just over half (56%) disagreed that future support should be dependent on improvements in productivity, with many expressing a preference for support based on positive environmental impact over time.

Research and development

Two thirds (66%) agreed additional measures were needed to ensure research supports the agricultural sector to meet its climate change targets. Many identified areas for further research, including into agroecological farming and carbon sequestration. The need for clear and accessible communication of research to farmers and supporting them to implement research recommendations was also highlighted.

Knowledge and skills

Several highlighted that knowledge, skills and innovation will be crucial for transformational change in agriculture and in ensuring the sector adopts best practice. Most reaffirmed the need for targeted, tailored action for farm businesses, calling for more individualised support, peer-to-peer knowledge exchange, local discussion groups and improved access to skills development opportunities. Respondents were split on whether continuing professional development (CPD) should be a condition of publicly-funded support.

Supply chains

There were calls for a shorter supply chain to encourage food production and consumption centred on local suppliers and home grown produce. An emphasis on transparency and traceability in the supply chain could also highlight green credentials. The benefits of gaining farm assurance were commonly identified, but several felt that farm assurance schemes only require compliance with minimum standards, and others described them as inadequate, lacking credibility and ineffectual at assuring product quality.

Conclusions

A large number of individuals and stakeholders with detailed knowledge took part in the consultation. The views expressed in the consultation provide a useful evidence base for the Scottish Government and the Agriculture Reform Implementation Oversight Board to draw on when developing the Agriculture Bill. However, given the variation in perspectives, priorities and concerns it is likely the proposals will not satisfy all stakeholders.

1. Introduction

The Scottish Government wants the successor to the European Union's Common Agricultural Policy (CAP) to enable Scotland's agricultural sector to be economically sustainable, meet net zero targets and enhance biodiversity¹. Drafting the successor to the CAP presents an opportunity for the SG to catalyse change in the farming and crofting sector in Scotland.

In 2020, the Scottish Government convened Farmer Led Groups (FLG) to develop advice and proposals on practical ways to reduce greenhouse gas (GHG) emissions, tackle climate change and increase biodiversity. Farmer Led Groups represented five areas of land use, including suckler beef, arable, dairy and pig sectors, upland farming and crofting. Advice and proposals developed by FLGs highlighted nine areas of ideas and concerns, spanning: baseline data collection, funding stipulations, biodiversity commitments, a Just Transition in agriculture, sequestration, productivity, the role of research and development, building knowledge and skills, and the role of the supply chain initiatives.

To assess public opinion on the themes arising from the FLGs, a consultation on 'Agricultural Transition – First Steps toward Our National Policy'² ran from 25 August to 17 November 2021. It included 21 open and eight closed questions which were organised around the nine themes identified by the FLG. The consultation provides an opportunity for the Scottish Government to understand the diverse perspectives, expertise and experience that stakeholders can contribute to the Bill, as Scotland moves towards a Just Transition of the agricultural sector.

New legislation will drive reform and underpin a framework of investment in rural businesses and communities, to create sustainable, equitable and fair policies for Scottish agriculture. An analysis of the consultation responses will contribute to the work of the Agriculture Reform Implementation Oversight Board (ARIOB) who will draw on the work of the FLGs and responses to the consultation for proposals of the Agricultural Bill.

Profile of respondents

In total, 314 consultation responses were received. Most were submitted via the online consultation platform, Citizen Space. Those received in an alternative format, for example, a PDF document, were entered into Citizen Space by the Scottish Government. Full responses to the consultation, where permission for publication was granted, can be found on the Scottish Government's website.

Individuals provided 224 responses to the consultation; the remaining 90 were from organisations. Appendix C details the profile of organisations that took part in the consultation. The largest share of organisational responses came from organisations involved in food and agriculture (36) and environmental organisations (16). Farm

¹ Due to the exit of the United Kingdom from the European Union in January 2021, farmers, landowners and food producers in the UK no longer receive the income support of the CAP. The UK nations are each developing their own policies to support of the agricultural sector financially.

² The consultation document can be found [on the Scottish Government website](#).

businesses provided 27 responses; the total number may be higher, but it is not possible to establish how many additional individual responses were farm businesses.

Analysis approach

The Lines Between was commissioned to provide robust, independent analysis of the consultation responses. This report presents the range of views expressed by consultation respondents. A public consultation means anyone can express their views; individuals and organisations with an interest in the topic are more likely to respond than those without.

This self-selection means the views of consultation respondents do not necessarily represent of the views of the general population.

Quantitative analysis

An analysis of responses to closed questions is presented in a table at the start of each question. This shows the number and percentage of all 314 respondents who agreed with each proposal, who disagreed and who were unsure. These percentages illustrate the range of opinion held by consultation respondents. As this sample is self-selecting, no conclusions can be drawn about the level of support or opposition among the general public. In addition, Appendix A includes the percentage scores for individual respondents and for organisations to illustrate how views differ by type of respondent.

Qualitative analysis

Qualitative analysis outlines the key themes identified in responses to each question. The analyst team coded each response against a coding framework which was developed based on a review of the consultation questions and a sample of responses. In a small number of instances where alternative format responses contained information that did not align to specific questions, analysts exercised judgement about the most relevant place to include this material for analysis purposes.

A few organisations provided very detailed responses relating to their particular expertise. There is not scope in this report to fully summarise these responses; however, the responses are referenced where possible. Where appropriate, quotes from individuals and organisations are included to illustrate key points and to provide useful examples, insights and contextual information. Full responses to the consultation, where permission for publication was granted, can be found on the Scottish Government's website.

Weight of opinion

While qualitative analysis of open-ended questions does not permit the quantification of results, we signify the weight of a particular view using the following framework which indicates which are the most common or prevalent themes across responses:

- The most common / prevalent theme in responses; the most frequently identified.
- Many respondents; more than 50, another prevalent theme.
- Several respondents; 31-50, a recurring theme.
- Some respondents; 11-30, another theme.
- A few / a small number of respondents; <10, a less commonly mentioned theme.
- Two/one respondents; a singular comment or a view identified in two responses.

Report structure

This report presents an analysis of responses to the questions under each section of the consultation document, as follows:

- Chapter 2: Baseline – Q1.1 to Q1.5, plus Q9.3 which focuses on data collection
- Chapter 3: Capital funding – Q2.1 to Q2.3
- Chapter 4: Biodiversity – Q3.1 and Q3.2
- Chapter 5: Just Transition – Q4.1 and Q4.2
- Chapter 6: Sequestration – Q5.1
- Chapter 7: Productivity – Q6.1 and Q6.2
- Chapter 8: Research and development – Q7.1
- Chapter 9: Knowledge and skills – Q8.1 to Q8.3
- Chapter 10: Supply chains – Q9.1 and Q9.2
- Conclusions are set out in Chapter 11.
- A full quantitative breakdown is provided as Appendix A, additional analysis is presented in Appendix B, A sectoral classification of respondents is Appendix C, and a full list of the consultation questions is Appendix D.

Given the breadth of responses, the main report focuses on the most common themes seen at each question. The additional analysis in Appendix B includes descriptions of less commonly mentioned themes, and lists of points or suggestions made by respondents.

Throughout this report reference is made to farms, farm businesses and farmers, crofts and crofters, and land managers. Where only farm or farmer has been used, this is for brevity and is not intended to exclude any other types of agriculture.

2. Baselineing

This chapter presents an analysis of responses to the first consultation questions, which cover baselineing and ongoing data collection for measures such as carbon audits and biodiversity. Baselineing was identified by the Farmer Led Groups as key to driving progress. The consultation questions examine whether support should be tied to baseline data collection, whether and what data should be collated, and how businesses can commit to incorporating baselineing into their practice. An analysis of responses to Q9.3 is also included in this chapter, as its themes overlap with the baselineing questions.

Q1.1: Should agricultural businesses receiving support be required to undertake a level of baseline data collection?

Among all (314)	Yes	No	Don't know	No answer	No. of comments
Number	268	25	14	7	264
%	85%	8%	4%	2%	

The vast majority of respondents (85%) agreed that agricultural businesses receiving support should be required to undertake baseline data collection; fewer than one in ten (8%) felt this should not be the case, and 7% were unsure or did not answer. Agreement was very high among both individual respondents (84%) and organisations (88%), but virtually all of those who disagreed were individuals.

Baseline needed to monitor progress

A view that a baseline is essential for a full and accurate understanding of the current status within the sector was the most common theme in responses, on the basis it can be used to monitor change and progress and assess the success of policy and support.

Using data for planning and business improvement

The use and value of baseline data was the second most prevalent theme. Comments typically highlighted one, or both, of two key benefits. Many described how the data could help farms identify areas for improvement, both in relation to environmental targets and business practices, and develop plans to address those areas. Several felt benchmarking against baseline data could help inform farmers when developing their own plans.

Respondents also highlighted the value of the data in planning more broadly. Government and decision makers could use it to develop policy and guidance, and to inform the direction and level of public funding and support. The potential for the data to be used by the industry more widely, to forecast future performance, was described. It could also be used to inform wider transitions such as the Just Transition and Scotland becoming a Good Food Nation.

“These baseline evaluations can feed into regional land use partnerships so that farms and agricultural businesses are not considered in isolation but a crucial component of overall regional land use strategies as well as measuring progress against national levels and targets.” - CIEEM- Chartered Institute of Ecology and Environmental Management

Baseline data collection should be a condition of support

A third common strand of discussion across comments was agreement that support should be conditional on baseline data collection. Most made general statements that this should be a minimum requirement in exchange for continued support. Some felt this gives the taxpayer confidence that public funds are being used effectively.

“This is an absolutely basic 'public good', and if the principle embodied in any new support system is to be 'public funds for public goods' (as it should be), then to have an accurate picture of the baseline state of play is essential.” - Individual

Straightforward data collection

Many respondents raised concerns over the potential cost and time implications of data collection. Though most of these respondents agreed with collecting data, there were concerns about the administrative burden, particularly for small farms and crofts. Several respondents called for the process to be as simple and inexpensive as possible with easy to complete forms. There were also calls for support to be available.

“However, data collection can be an administrative burden, especially for small farms that are more likely to already make significant contributions to biodiversity, climate change mitigation and social objectives, and proposals should provide for appropriate procedures and support.” – Pasture for Life

Other data collection issues

Various points around data collection were made by many respondents. Most commonly, respondents outlined how the data collection process could be optimised and streamlined. There were calls for the metrics to be relevant, meaningful, well thought out, agreed upon and standardised. A small number expressed a view that the volume of data required should be proportionate to farm size. There were also calls to use standardised tools and calculators, and smart or automated tools, to ensure accuracy and consistency³. Respondents expressed mixed views on how the data should be collected and by whom. A small number of individuals argued that farmers should be responsible; other organisations and individuals suggested independent or government assessors, or researchers, would provide better data. The Crofting Commission called for consideration to be given to the practicalities of data collection on shared common grazing land.

Some who argued the data needs to be accurate, validated and be collated and used effectively. A few expressed concerns about the robustness of current data collection. Two respondents specifically noted current tools do not consider grassland sequestration. A small number called factors outside a farmer's control to be considered e.g. weather, flooding, animal health outbreaks and activities being undertaken on neighbouring land.

Some suggested which data should be included in the baseline collection. These primarily focussed on carbon/emissions and biodiversity; a full list of is available in Appendix B.

³ For example, Scottish Society of Crop Research suggested that Nature Scot's programme technologies should be a key part of this benchmarking.

Important to environmental protection

Several respondents emphasised the importance of baseline data collection in evidencing progress across a variety of environmental measures. These respondents felt the data could drive reduced emissions, improved biodiversity and better soil and water management, and help farmers understand how they can make improvements in such areas. A few felt regular data collection would keep a focus on environmental protection.

Increased transparency and accountability

Another theme, mentioned by some respondents, was the potential for data collection to improve transparency about the sector, and increase accountability. They felt a requirement to provide accurate data would encourage a greater sense of responsibility. A few noted the public could view agriculture more positively as a result.

Q1.2: Should collected data be submitted for national collation?

Q1.3: What information should be collated nationally?

Among all (314)	Yes	No	Don't know	No answer	No. of comments
Number	260	20	27	7	250
%	83%	6%	9%	2%	

Over four fifths of respondents (83%) agreed that collected data should be submitted for national collation, with 6% disagreeing and 11% unsure or not answering. High agreement was recorded by both individuals (82%) and organisations (84%), but most of those who disagreed were individuals. While open comments were given by 250 respondents, not all addressed both parts of the question. This section presents analysis of themes around the benefits and challenges of national collation, followed by suggestions of what data should be collated.

National collation

Support for national collation to monitor progress

By far the most common theme in response to these questions was support for national collation of data and the resulting benefits. Many respondents argued it is vital to have a full, clear, national picture of the baseline to be able to monitor future progress and understand changes taking place. Some highlighted the value of national data in giving farmers wider context; the national data could provide a point of reference to benchmark their farm against. More generally, some noted their support and the importance of getting a comprehensive national picture, with a few reflecting that a national collation approach helps demonstrate everyone is working together.

“Scottish Government has set challenging targets to address biodiversity loss and climate change and data will need to be analysed at a national level to monitor progress and highlight areas where additional support is required.” – South of Scotland Enterprise

A national dataset to drive action and policy development

The second most prevalent theme was how a national dataset could drive future action and policy development. Several respondents highlighted ways the data could be used. These included: identifying and prioritising areas where more attention, action or resource is needed; improving the targeting of existing support and funds, ensuring that public money is being used effectively; being used for research; informing the development of future schemes, support, funding and incentives; and shaping policy more widely including supporting the implementation of strategies such as Scotland's Third Land Use Strategy, the Scottish Biodiversity Strategy, and Scotland's Forestry strategy. A small number felt that national collation could help drive compliance with national standards and targets.

“In short, if resources are to be dedicated to baseline data collection, this data should be used to derive as much benefit as possible at individual business and whole industry level. National collation has the potential to facilitate both these objectives.” – Scottish Tenant Farmers Association

Availability and ownership of data

There were mixed views among several respondents about who should own and access collated data. Some argued that, if collated, individual farm data should be anonymous, that farmers should own their data and that it should not be used for commercial purposes. Others argued that nationally collated data should be available to the public, public and regional bodies and researchers. This was seen as necessary to ensure transparency, ensure good use of public funds and encourage change. A specific point was made about the need to ensure that no publicly available data identifies sensitive wildlife habitats.

Potential negative consequences or impact

A recurring theme was concerns about collecting and using collated data. Several respondents – only a few of whom disagreed with national collation - raised a variety of issues which are addressed elsewhere in this chapter. These included the potential burden of data collection and the need for standardised metrics, simple data collection processes, and high quality data. Some identified other concerns including: a lack of enthusiasm from farmers; that the data could be biased by organisations trying to secure funds; and that the data could be used to assign blame to farms, sectors or areas of the country. A very small number felt that national data would have little or no impact.

Levels of data

Another theme, raised by some, was the challenge of reflecting the diversity of land use and agriculture in Scotland in national data. There were concerns that national data could lead to unfair comparisons and calls for national data to have sufficient context and reflect the variety of the sector. However, others noted that national data could help improve understanding of regional differences, and there were some calls for regional, local or farm type level data to be available. One suggested that using SEPA (Scottish Environmental Protection Agency) local offices might be an appropriate scale; another mentioned involving Regional Land Use Partnerships (RLUPs).

“There are differences between types of land, types of farm and location/weather. Therefore a national collation will mean very little.” - Individual

Types of information to be collated nationally

Reflecting the focus of the consultation paper, the three types of data most commonly suggested by respondents related to carbon and greenhouse gas emissions, biodiversity and soil. These are described below. Various other suggestions were made, including sequestration, water quality, socio-economic measures, and animal welfare. These are detailed in Appendix B.

Carbon and Greenhouse Gas emissions

Collecting and collating data on carbon and greenhouse gas emissions was the most common suggestion. Most called for this in broad terms but where detail was given, respondents suggested pooling the results of carbon audits. Scottish Agronomy raised the global warming potential of Nitrous Oxide and the British Veterinary Association called for policies to reflect the different types of greenhouse gases.

Biodiversity

Another prevalent theme was biodiversity. Scottish Wildlife Trust and a group of respondents who gave a similar response noted the Scottish Biodiversity Information Forum’s review, which highlighted a need to improve the infrastructure for recording, managing, sharing and using wildlife data. They argued improved data would help capture the state of Scotland’s species and habitats and actions farmers are already taking.

Soil health and management

A recurring theme was a variety of requests around collating information on soil. Some called for analysis of soil health in general through regular sampling. Others specified soil carbon, pH, nutrient status and management, and microbiology. Conversely, NFU Scotland noted that soil measures are more aligned to specific agricultural businesses, and so there is little value in national collation.

Q1.4: What are the next steps that can be taken to commit businesses to continuous improvement utilising the information presented by carbon, soil, biodiversity auditing?

Responses to Q1.4 were given by 284 respondents. There was significant overlap in the themes emerging from Q1.4 and Q1.5. This section focuses on themes which may increase commitment to continuous improvement, with the analysis under Q1.5 focussing on other steps which could encourage participation.

Financial incentives and a condition of future funding

The most common theme at Q1.4, and third most prevalent at Q1.5, was the role of financial support in ensuring commitment. A variety of approaches were described in comments, from the use of incentives and penalties, support in the form of grants and subsidies, and making continuous improvement a condition of future funding. Though most referenced incentives in financial terms, support such as training was also mentioned.

Many advocated for a system of rewards and incentives, using a ‘carrot not a stick’ approach. Suggestions included: incentivising farmers to collect data; using collected data to adjust payments according to performance; and additional funding or support for those who exceed expectations or undertake voluntary improvement. While penalties were less commonly mentioned, there were calls for fines or removal of funding for those who fail to comply or do not meet targets. Some respondents repeated their call to ensure whatever system is put in place does not penalise those who have already made positive progress.

Several respondents suggested using grants and subsidies, often as part of the reward system outlined above. These comments typically highlighted the financial costs to farm businesses – particularly small farms and crofts - of committing to improvements and the need to help cover those outlays. A small number noted that financial support helps increase farmers’ confidence reducing the risk associated with changing practice. Plantlife Scotland made a specific call to ensure funds are delivered on time and paid consistently over the long-term, to address the high levels of financial uncertainty in the sector. A few respondents argued that any carbon producing activities should no longer be subsidised.

The third sub-theme was to make future funding conditional on showing improvement. Responses ranged from basing all payments on this, to having a tiered approach with a baseline payment for activities which meet criteria, supplemented by incentives as above.

A small number of respondents raised timescales, calling for schemes to have sufficient longevity to reflect the fact that much environmental change can take time. This would make farmers more confident they will benefit from taking action in the long-term.

“For agricultural businesses to commit to delivering continuous improvement on their carbon, soil and biodiversity indicators, it will be essential that the Scottish Government create a conducive environment, including ensuring that the businesses can continue to remain economically viable. As many have observed in the past, it’s hard to be green when you’re in the red. Agricultural businesses will need to be financially supported in enhancing their delivery of these public goods.” - Royal Institution of Chartered Surveyors

“Put a huge emphasis on education and awareness within the farming community that they must now ‘produce’ environmental outputs (measured through these surveys) . Speak of it as a market in environmental goods. And then link it 100% to base subsidy payments. Farmers are very inventive at producing goods if the signals are clear, make the signals clear.” - Individual

Continued monitoring and effective use of data

The second most common theme was how continued data collection, and effective use of data, could ensure commitment. Some respondents called for regular audits to verify progress against the baseline; a few felt this should be done annually. Related to this, some expressed concerns around continued data collection, raising the need for fair and accurate data and simple data collection process. As this was the second most common theme at Q1.5, these comments are included in that analysis below.

Several respondents highlighted the need for data to be used effectively to benefit the sector and individual farms. They described the importance of publishing the data widely

and regularly, ensuring reports, guidance and recommendations for improvement are clear and accessible, and of providing farmers with training on how to use the data. Some called for experienced and independent stakeholders to monitor and report on change. A few said case studies could promote success and demonstrate best practice.

“Using the data collected to inform the likes of Climate Smart Farm Plans and Climate Smart Transformation activities would help drive businesses in the required direction.” – NFU Scotland”

Education, training and advice

While this was the third most prevalent theme at Q1.4, it was the most common at Q1.5 and a full analysis is presented under Q1.5 below.

Whole farm plans

Preparing whole farm plans was a recurring theme at both Q1.4 and Q1.5, mainly in comments from two groups who left similar responses throughout the consultation. An example, provided by Scottish Environment LINK, is below. In addition to these consistent comments, a few others highlighted the value of whole farm plans.

“The information presented by carbon, soil and biodiversity auditing should be used to help prepare whole farm environment plans. These plans should identify: a) where urgent action is needed to reduce or minimise environmental impacts; b) activities/practices that should continue in order to maintain existing good practice; and c) opportunities for action to enhance and improve environmental performance. The preparation of plans should be supported by farm advisors. Plans could identify sources of government financial support and grant aid for the activities included.” – Scottish Environment LINK (and others)

Communicating benefits to farmers and crofters

Several respondents at Q1.4 and some at Q1.5 highlighted the need to ensure farmers and crofters understand why the data is being collected, how the data can benefit their business both financially and environmentally, and the need for environmental improvement. A small number noted that this could be aided by ensuring that the data collected is relevant and useful. Equally, some called for clarity on how the data can be accessed and used by farmers, arguing it needs to be freely available in easy to understand formats, with scope to view relevant data in the context of farm type. A few also highlighted the importance of providing a range of solutions for different farm types.

“An information and engagement campaign which makes clear what added value baseline data collection will bring and which demonstrates how to take samples and make measurements will be important.” – Royal Society of Edinburgh

Q1.5: How can baselining activities be incorporated into common business practices across all farm types?

Over four fifths of respondents (259) answered Q1.5. Key themes evident in responses were the need for education, training and advice and a desire for a simple approach to data collection. In addition respondents reiterated comments which have already been addressed under the analysis of Q1.4; including linking future support to baseline activities, whole farm planning, and communicating benefits to farmers and crofters.

Education, training and advice

The most prevalent suggestion for incorporating baselining activities into common practice was to provide sufficient education, training, advice and guidance to the sector. This was also the third most common theme to increase commitment to improvement at Q1.4. Knowledge and skills in the sector are also the focus of Chapter 9.

Many of those calling for greater emphasis on education, training and Continuing Professional Development for farmers did not give more detail. Some identified a need for training on data collection and how to interpret and use data to benefit farm businesses. The importance of new technology skills training and how to use any new data collection software, and for training in agroecology and land management, was also raised. Scottish Wildlife Trust suggested creating a 'chartered farmer' qualification, and a very small number felt entry level qualifications should be a pre-requisite for applying for support.

Requests for advice and guidance took many forms. These included: provision of knowledge transfer initiatives, including peer-to-peer learning and sharing of good practice through forums such as farmer led groups; mentoring; funded advisory services; support from volunteer organisations; and suggested roles for the Farm Advisory Service (FAS) and SGRIPD (Scottish Governments Rural Payments And Inspections Directorate). A small number suggested a focus on younger farmers, or for on-farm visits to reach those who may not usually engage. Farmer-led approaches, using local farmer groups or clusters, were mentioned by a few respondents. Examples included Strathmore Wildlife Cluster, Lynbreck Smallholding in Cairngorms, and the network of LEAF Innovation Centres and Demonstration Farms.

"We need to ensure farmers and crofters have access to appropriate support and advice to develop knowledge and confidence in the role of healthy soils, healthy farm ecosystems and the role of nature in ensuring business resilience and profitability BEFORE we can take steps to commit businesses to continuous improvement this type of auditing will demand... Our current advice and education provision is lagging behind and not preparing current farmers and crofters or the next generation for the transition and adaptation they inevitably will have to face." - The Nature Friendly Farming Network

Simplify data collection

The need for simple data collection processes, which minimise additional work for farmers and crofters was the second most prevalent theme. In these comments were general calls for processes to be as simple as possible with a few key metrics on the basis that this would make them quick to complete and easy to incorporate into farming practices,

thereby encouraging participation. A small number requested that farmers of all types are included in the design and regular review of baselining activities to ensure this is the case.

“Strip it down, make it easy to complete, no-nonsense and straightforward.” – Individual

Some respondents called for a standardised approach with clarity on which measures are used, consistent procedures for information gathering, measures to avoid duplication, and standardised, user-friendly data collection templates.

Another theme was a call for baselining activities to be incorporated into existing data collection and auditing, or to use existing data for baselining. Specific proposals included: incorporating data into annual census returns, annual SAF (Single Application Form) return, or as part of EFA (Ecological Focus Areas) notation; for data collection to form part of departmental inspections; using a system similar to IACS (Integrated Administration and Control System); or through Scottish Environment Web or SGRPID reporting. Two respondents noted their dislike of the FAS Carbon Audits which was seen as too generic to provide meaningful recommendations.

Suggested approaches to data collection

A wide variety of suggestions and examples of approaches to data collection were put forward in responses. Some shared examples of specific tools, processes or frameworks to use or replicate; these are listed in Appendix B. Approaches which were suggested by very small numbers included online forms or apps, the use of independent advisors, assessment by professionals such as ecologists, and cooperation with environmental / wildlife groups who have experience of monitoring biodiversity. A few commented on timescales, advocating long-term monitoring and suggesting annual or bi-annual reporting and updated Land Management Plans. SOAS (Scottish Agricultural Organisation Society) outlined the potential for co-operatively owned data and the wider adoption of smart sensing technology.

Addressing the variety of farm businesses

Concerns about how to implement baselining activities across the diverse range of farms and crofts in Scotland was another response theme. Despite calls for simplicity and standardisation, some respondents felt a ‘one size fits all’ approach would not work and called for tailored activities or approaches depending on the type and size of farm.

“One or more models of best business practices should be developed, for each of the sectors (arable, beef etc) to make it easier for individual farmers/businesses to adopt them” – Individual

Q9.3: How can ongoing data capture and utilisation be enhanced on Scottish farms and crofts?

Seven in ten (219) answered Q9.3. Several reiterated general points about baselining which have been covered earlier in this chapter. The analysis in this section presents the themes which directly addressed the question.

Straightforward data collection

There was a recurrent call for data collection to be simple and straightforward, with two main themes within this strand of discussion. Several respondents highlighted concerns around the potential cost and time implications of data collection, and asked for it to be easy and with as little paperwork or bureaucracy as possible. The consensus was that this would encourage uptake and reduce resistance. A few asked for duplication be avoided.

Using simple digital platforms or apps for data collection was also mentioned by several respondents, whose suggestions included making websites more user-friendly and to allow for cross-platform data entry. Despite calls for digital processes to become the norm, a small number called for the continued use of paper forms, primarily due to concerns over digital literacy.

“Data capture and recording takes time and commitment, and is largely an office job. Farmers are good at multitasking but few have surplus time for office work so it's crucial that the move towards a new support structure is managed very carefully as the industry learns to record and use data effectively.” - Individual

“There is a need for a common shared platform for data capture and data sharing, or minimisation of the number of platforms. There is a role for Scottish Government to help streamline the various initiatives, tools, and platforms that are currently available and ensure that user access is easy and at minimal cost to the land manager.” - NatureScot

Other digital approaches and challenges

The second most common theme was the potential role of technology. A small number described new technology which could help data collection, including satellite data, remote sensing and monitoring, aerial drone surveys and Artificial Intelligence. Some respondents noted that poor broadband connectivity in rural areas limits the use of technology and called for this to be improved. A few respondents highlighted a perceived lack of digital skills in the sector, and suggested that advice and guidance should be available to support farmers in using any new technology.

“As a first step, ensuring that every business has access to reliable, fast broadband would enable digital solutions to be easily deployed and utilised universally. We still see many farm businesses put off utilising digital solutions because of a lack of connectivity.” Quality Meat Scotland

Providing support and guidance

Another theme was the need to provide support and guidance to the sector. Many comments were general calls for advice and training in data collection approaches. Other

specific suggestions included workshops with practical demonstrations and supporting local crofting associations through visits. A few called for training on how to analyse and make best use of any data collected and two suggested peer-to-peer learning.

Link to existing data collection

Some respondents asked for new data collection to be linked to or included in existing data collection requirements. Suggestions included making it part of, or replacing, the SAF, annual census information, or ScotEID.

Farmers should be able to use and own the data

The importance of ensuring learning from data analysis is communicated back to farmers in clear and accessible ways was highlighted by some respondents. Transparent, easy to access data, presented in regular reports, events and digestible formats, was felt to be needed to help farmers understand what improvements are required and to drive change. A few respondents felt it was important that the benefits of collecting data are communicated to farmers to encourage their participation. Related to this, a small number of respondents expressed a clear view that farmers should own the data they collect.

Ways to collect the data

Various comments were provided about how the data should be collected and by whom. Most called for farmers to collect the data themselves, with some suggesting they should be paid or incentivised to do so. A few respondents suggested collaboration with local communities, nature organisations, volunteer wildlife recorders, SEPA, and universities.

Collecting relevant data

Respondents highlighted the need to ensure that data collection is focussed on relevant data and metrics. Some noted that a large volume of data is already collected, but it needs to be analysed and used more effectively to help the sector develop.

3. Capital funding

This chapter presents an analysis of responses to questions about capital funding i.e. funding which allows farmers and crofters to invest in the items they need to make improvements. The consultation explored whether capital funding should be linked to reducing emissions, the role of match funding, and what capital funding should be given to

Q2.1: Should capital funding be limited to only providing support for capital items that have a clear link to reducing greenhouse gas emissions? If not, why not?

Among all (314)	Yes	No	Don't know	No answer	No. of comments
Number	83	200	22	9	242
%	26%	64%	7%	3%	

Almost two thirds (64%) disagreed with only funding capital items which have a clear link to reducing emissions - the highest level of disagreement seen in the consultation. A majority of individuals and organisations disagreed (60% and 73% respectively). However, it is clear from open responses that respondents did not disagree with reducing emissions; they disagreed as they felt the need to address a wider range of environmental issues.

Funding required for biodiversity and other environmental issues

By far the most common reason for disagreement was that a focus on greenhouse gas emissions is too narrow, and that capital funding should be provided for items which positively impact other environmental issues. Many expressed a view that funding should be made available to support actions which improve biodiversity. Beyond this, respondents raised a variety of areas which capital funding could address, including soil health, water quality and animal health. A full list is provided in Appendix B

Other uses for capital funding

The second most prevalent theme was for capital funding to address a range of sectoral issues, not necessarily related to business efficiency (see below). Many respondents suggested areas which could benefit from investment. Most common were: sustainable food production and food security; improved farm safety; and support for young farmers to address a labour shortage. A list of other areas is included at Appendix B.

“There are equally strong arguments in favour of support for capital spending that boosts broader ecological objectives (biodiversity enhancement for example), and also capital spending that helps facilitate sustainable production of a better mix of high quality, nutritious foods. Indeed, these three areas are inter-connected.” - Individual

Capital funding to improve business efficiency and productivity

Several respondents argued that capital funding was needed to fund business efficiency and productivity. Most made general calls for items that would help this. Others shared specific requests, the most common being for investment in infrastructure (e.g. buildings, roads, fences, cattle handling facilities) or in improved business management.

“It is likely that Scottish farming will be undergoing radical changes over the coming years, with farmers working in a less subsidised more market facing world. In many cases this will require significant modernisation which in turn will require significant capital investment.” – Rare Breeds Survival Trust

Establishing a clear link to reducing emissions

Many respondents questioned how a clear link to reducing emissions would be defined and measured. A few felt the difficulty in demonstrating a clear link means flexibility and common sense should be applied to funding decisions. Several shared examples of actions which could indirectly reduce emissions; most commonly these described the secondary impact of business efficiency measures, in particular higher productivity leading to fewer food imports and reduced food miles. A few respondents noted that improving efficiency would give farmers and crofters more time to focus on other environmental improvements. Some argued that improvements to biodiversity, soil health and animal management and health would indirectly reduce emissions in the long-term.

“While capital equipment for improving animal feeding and health and to improve performance of grassland or crops or the use of smart farming/precision farming technologies in the arable and livestock sectors would drive production efficiencies, such improvements to production would almost certainly also reduce GHG emissions intensity.” – NFU Scotland

No capital funding for primarily business measures

Another theme, advocated mostly by a groups of respondents who submitted a similar response, was that capital funding should not be used for items which primarily benefit business economically. Some argued that capital funding should deliver value for public money and should be limited to actions which deliver positive outcomes for the environment; other items could be funded through loans, for example.

Reflecting the diversity of Scottish agriculture

Some called for capital funding to reflect the variety of farm types in Scotland. They expressed concerns that smaller or remote businesses could miss out on capital funding as they do not need, or cannot implement, the larger items which are eligible for funding. A few criticised the items available under the Sustainable Agriculture Capital Grant Scheme (SACGS) pilot, or felt the list of capital items in the consultation paper was insufficient; they called for a range of items to be funded to suit different farms, crofts or areas.

Ensuring positive impact

Concerns about the effectiveness of funding schemes were raised by some respondents. A small number argued that funding should not be used to add climate-friendly items to farms with high carbon emissions and cited the importance carbon audits. Small numbers each commented that funding should be considered holistically and that actions to improve the environment should not be counter-intuitive.

Q2.2: What role should match funding have in any capital funding?

Q2.2 asked respondents to consider how match funding could be used alongside capital funding to farm businesses - where government asks businesses to match a proportion of capital funding that is being invested. Across the 251 open comments, key themes were the eligibility for, and benefits and challenges of using, match funding.

Match funding eligibility and rates

The most frequent theme in responses to Q.2.2 was the eligibility criteria and rates of match funding on offer. Several respondents proposed the level of match funding requested of businesses should be based on the extent of public benefit or business gain. For example, businesses contribute less match funding for investments which have a public good or positive environmental impact. But, if a business benefits from support, they should contribute a greater proportion of match funding i.e. invest more themselves.

Some suggested specific match funding rates (e.g. 50% was often mentioned) or using the intervention rates in SACGS. However, several called for means tested match funding or for match funding proportions to be tapered. There were requests for preferential rates or exemptions for: new and younger farmers; those with limited existing financial resources; farms in less favoured or remote areas; and those on small farms. A few argued against funding wealthy or large farm businesses, estates and landowners, including charities.

To avoid excluding those with limited financial resources, allowing alternatives to money as a way to meet match funding requirements was advocated by some. Suggestions included time, labour, machinery use and tonnes of carbon sequestered.

“Where funding comes with clear public benefits - for protecting and enhancing biodiversity and fostering equity among food producers, rural communities and consumers - the percentage of required match funding should be minimal or it should be possible to make contributions ‘in kind’, for example, through a clear commitment of dedicated hours. Alternatively, an agreement to deliver clear project outcomes (e.g. for local food production or carbon sequestration) should be sufficient.”- The Landworkers’ Alliance

Other themes related to eligibility, each raised by small numbers, included:

- A call for match funding for on-farm processing, retail development and funding ‘beyond the farm’ gate to support short supply chains.
- Incentivising collective or whole landscape-based applications within the match funding process to encourage greater farmer co-operation.
- The need to increasingly use match funding over time to maximise uptake and ensure a Just Transition to net zero.
- Ensuring those who have already taken steps towards sustainable farming practices are not disadvantaged in the funding process.
- Requests for a simple, accessible application process to reduce the administrative burden, and associated costs, on time-pressed farmers.

Benefits of match funding

Benefits of match funding was the second most prevalent theme in responses. Match funding was seen to encourage businesses to grow and develop in more sustainable ways, accelerate the adoption of new technologies, improve efficiency and therefore help realise environmental policy objectives.

Some felt that requiring recipients to match government funding was more likely to lead to “buy in” and commitment to change. Other less common points raised included match funding: being a reasonable requirement or should be expected; offers best value for public money; allows more businesses across the sector to be supported; ensures a measured approach from businesses looking for funding; and evidences the viability of the business, and therefore, the security of the investment.

“I think it is an important part of the offering. There will be more bang for your buck with others contributing a share and more likely to have a positive outcome if “they have skin in the game”. Anyone knowing that they have to contribute will be driven to make it work”- Individual

Challenges and barriers

Another recurring theme reflected concern that match funding could exclude, or be a barrier to uptake for, crofters, tenant farmers, small-scale farms, new-entrant farmers and those farming in remote or less favoured areas. It was felt these groups could experience: a lack of financial resources to raise match funds; a disproportionate administrative burden of applying for match funding; their investments being unlikely to lead financial returns; and cash flow issues preventing participation in a payment-in-arrears funding system. A few suggested ways to ensure all farm types are included in the funding process. These included: allowing ‘payments in kind’ to serve as match funding as outlined above, free support to assist with grant applications, and payments of grants up-front. More favourable eligibility criteria were also requested, such as low minimum land area thresholds and accepting applications from those farming unproductive land. One individual cited the New Entrant Capital grant scheme as a good example a grant scheme with effective targeting.

Some argued against using match funding more generally. They cited the additional burden that raising match funds would place on farmers, landowners, and charities, at a time when many are struggling financially. Using match funding could then deter uptake of capital funding and, therefore, hinder the transition to more sustainable farming practices.

Alternatives to match funding

While most responses to Q2.2 considered match funding between government and farmers, a small number commented on other match funding arrangements. Banks and financial organisations were suggested as providers of funding, and while private, producers and retailers were mentioned it was often unclear if they were seen as the provider or recipient of match funding. A few also suggested alternative or additional financial solutions to meet policy objectives. These included: low-interest government loans, carbon credit markets, tax relief measures, longer-term maintenance funding, community ownership schemes and regulatory reform.

Conditional use of match funding

Several respondents expressed a view that it is justifiable to ask farm businesses to raise match funding when the proposed investment will benefit the business financially, for example through improved efficiency. However, respondents argued that investment in items or actions whose sole purpose is to reach environmental outcomes should be funded entirely through capital funding i.e. a farm business should not provide match funds if they do not benefit financially.

Price increases

Three respondents at Q2.2 and one at Q2.1 described concerns that a 'shopping list' of funded items could encourage excessive demand and to suppliers inflating prices.

"The problem with any capital funding is that a grant encourages the supplier to increase their prices and therefore after the grant fund the farmer ends up contributing the same as if there was no grant funding" – Agrovista UK Ltd.

Q2.3: What capital funding should be provided to the sector to assist in transformational change, particularly given that in many instances the support called for was directly related productivity or efficiency, that should improve financial returns of the business concerned?

Q2.3 explored which types of items or actions should receive capital funding. A total of 266 open comments were received.

The relationship between funding and productivity, efficiency, and profit

A recurring theme across responses to Q2.3 was the complex relationship between funding, productivity and efficiency, and transformational change. Mixed views were expressed by respondents. Several called for funding to boost productivity, efficiency, and profits, noting gains in these areas would also lead to a reduction in greenhouse gases. Others argued that capital funding was particularly important for farm businesses if investing in environmental measures would lead to reduced productivity or profit, returns on the investment would take time, or where the cost or risk of taking action is prohibitive.

Conversely, several respondents argued against funding for, or solely for, productivity and growth. Some were critical of 'productivity' and 'efficiency' as goals, arguing that definitions of these concepts should be more environmentally orientated. Some respondents felt that funding should be associated with a long-term, sustainable view, promoting future economic and environmental resilience, rather than short-term gains.

"If the changes called for are indeed transformational, then producers will be expected to make significant changes to their systems of production which may well deliver better productivity and efficiencies in the longer term but will involve a significant degree of risk and mistakes will be made in the shorter term. This should be borne in mind when setting the funding rates." – Individual

Environmental outcomes

The second most prevalent theme was that capital funding be provided for measures or items that help deliver positive environmental outcomes. Respondents referenced general environmental benefits as well as specific outcomes which may result from funding such as: reducing greenhouse gas emissions, peatland restoration, rewilding and habitat restoration, increased biodiversity, less pollution and improved water quality.

“So much support needs to go to many, many businesses to drive the action needed for our industry to fulfil the enormous potential we have to reduce carbon emissions, increase carbon draw down / sequestration and support our environment / wildlife (flora, fauna & water environments). These changes will lead to improved profits, better nutrient content of foods, better flooding and drought mitigation by soils but the paradigm shift is required at such speed that the whole shift needs good management and exceptional funding.” - Individual

Land, soil, and crop management

Capital funding to support changes to land, soil and crop management was the third most common theme. Some respondents specifically requested support to improve soil health through, for instance: changing crop establishment systems; improving drainage, nutrient-content or soil structure; or making more efficient use of or reducing chemical fertilisers. They argued these soil health improvements would contribute to other positive changes including carbon sequestration, improved biodiversity, increased land productivity, and assisting with flooding and drought mitigation.

Funding to increase tree, vegetation and hedgerow planting or support agroforestry was requested by some respondents. Some also asked for financial support to enable the transition to more sustainable overarching farming systems. Whole farming, regenerative, organic and agroecological approaches were suggested.

Resources for technology, equipment, and infrastructure

Another prevalent theme across comments was calls to fund technology, equipment, and infrastructure. Common examples included incentivising the adoption of smart or precision technology such as GPS systems and robotics which could reduce, pesticide and fuel use. One requested funding for vertical farming technologies. Others requested finance to increase on-farm renewable energy use or generation, or to enable the recycling of farm by-products via anaerobic digestion or biomass energy systems, for instance. A variety of other items requested included: animal handling equipment, direct drilling tools, weeding equipment, fencing, food/waste storage solutions, food processing equipment, sheds, bridges, drainage, roads and outdoor access infrastructure. A small number suggested funding for converting farm equipment to attain a lower carbon footprint, or to support reuse and repair approaches as a greener alternative to buying new. A few cautioned about investing in machinery, infrastructure or technology not yet proven in the Scottish context, or that may leave farmers in debt, or have a detrimental impact on the land.

Funding award process and delivery

Many respondents gave suggestions for the process of awarding and delivering funding. These included: measuring clearly defined outcomes to ensure accountability regarding funding impacts; using match funding or loans instead of capital funding in instances

where businesses benefit economically from funding; and tapered funding rates in favour of items with clear environmental benefits. A few proposed incentivising collective or joint funding applications to encourage farmer co-operation.

Views on how funding should be targeted were mixed. While a few felt it was important that early adopters of positive change were not disadvantaged in funding allocation, others felt funding should be targeted at mid-range or late adopters to drive change. In comments, the disadvantages of a one-size fits all approach to awarding funding, given the diverse geographies and farming sectors in Scotland, was highlighted. A small number drew attention to the need to ensure the supply of capital items could meet demand, or that increased demand did not inflate prices.

Livestock management

A recurring theme was for funding to support changes to livestock management, which could benefit the environment, increase productivity and efficiency, and improve animal welfare. Examples included funding for: increased pasture-raised animals; better pasture management; the provision of handling or mob grazing equipment; methane inhibitors; improved breeding practices; testing to reduce medication use; improved manure management and feed storage solutions; free-range poultry and bee keeping equipment. A small number suggested funding to aid the transition away from livestock farming, either by reducing livestock numbers or by moving to plant-based farming.

Food production and supply

Several respondents requested funding to transform food production and supply. Some called for more localised food production to reduce food miles, increase the nutrient value of food or bolster food security. Others advocated for green supply chain investments, such as green haulage, or the financing of collaborative, shorter or direct-to-consumer supply chains. Some comments suggested 'beyond the farm gate' funding to encourage on-farm or local processing (including local abattoirs) or support supply chain businesses. One respondent highlighted how such measures would not only reduce carbon emissions but enable farmers and producers to better compete with multinationals and command a fairer price for their produce. Other suggestions included funding to strengthen Scotland's agricultural food and drinks sector, introducing food labelling according to biodiversity or food mile criteria, and encouraging more sustainable consumer choices.

Less commonly mentioned themes

A list of less commonly mentioned themes is included at Appendix B. These included funding for proposals which have social benefits, the need to support diversification and funding for education and training.

4. Biodiversity

The biodiversity crisis was discussed by the Farmer Led Groups. This chapter analyses respondents' views how farmers and crofters could enhance biodiversity.

Q3.1: Should all farm and crofting businesses be incentivised to undertake actions which enhance biodiversity?

Q3.2: What actions would be required by the farming and crofting sectors to deliver a significant increase in biodiversity and wider-environmental benefits to address the biodiversity crisis?

Among all (314)	Yes	No	Don't know	No answer	No. of comments
Number	281	17	8	8	292
%	89%	5%	3%	3%	

Nine out of ten (89%) agreed that farms and crofts should be incentivised to undertake actions which enhance biodiversity; 5% disagreed, and 6% were unsure or did not answer. Individuals (90%) and organisations (89%) both recorded very high levels of agreement, but almost all who disagreed were individuals. Q3.2 received comments from 292 respondents. Most commonly, responses discussed: financial support; actions to create or maintain habitats for wildlife; organic farming; advice and training; and the need for individualised farm plans.

Financial support

Although not directly related to the question, the need for the Scottish Government to provide financial incentives or disincentives to encourage practices that enhance biodiversity was the most common theme across responses to this question. Some expressed a view that many farms are already enhancing biodiversity, and argued that financial incentives should not be aimed exclusively at those not currently taking action. Several mentioned the importance of the existing Agri-Environment Climate Scheme in funding activities, but some noted that such schemes can be onerous and bureaucratic.

Actions to create or maintain wildlife habitats

Many respondents gave specific and detailed suggestions for measures farmers could take to create or maintain wildlife habitats. These included: establishing hedgerows, particularly at field boundaries; planting more trees, including adopting agroforestry where trees are planted on grazing or arable land; and creating or improving wetland features such as ponds and small lochs. Several suggested enhancing soil quality; careful grazing management; and re-wilding or fallowing agricultural land.

Other suggestions identified by some included protecting or encouraging specific species; transitioning away from monoculture farming; restoring or protecting peatlands; creating wildlife corridors; planting different types of crops and/or grass; establishing or protecting wildflowers and areas for bird feeding and pollination; reducing livestock numbers; and crop rotation. A list of less commonly mentioned actions is in Appendix B.

“Agriculture is uniquely positioned to introduce approaches that will directly influence biodiversity’s increase by developing systems for managing grasslands and wetlands, integrating more hedgerows and trees, and restoring carbon-rich habitats, such as peatlands.” – The Nature Friendly Farming Network

Some respondents, however, urged caution. They gave examples where protecting one species might harm another, or when pursuing certain activities, such as intensive management of grasslands, could increase greenhouse gas emissions.

Organic farming and reducing use of chemicals

Another common view was that farms should embrace organic practices and reduce their use of chemicals, especially pesticides, artificial fertilisers and animal pharmaceuticals.

Advice and training

Several respondents identified the need for advice and training to support farmers to enhance biodiversity. These comments did not always specify who should deliver the advice and training, but suggestions included the Farmer Led Groups, the Scottish Government, and national environmental charitable organisations.

The importance of the Scottish Government’s role in formulating long-term policy to guide farmers across Scotland was another prevalent theme.

Tailored approach for each farm and croft

Several noted that there is no one size fits all approach, with appropriate measures for a farm dependent on factors such as its size, location, type of agricultural practice and topography. Respondents felt that each farm must determine its own course of action, with a few emphasising that it should be individual farmers that make decisions about their own farms rather than being told what to do by government.

“Everybody can do something to address the biodiversity crisis but this is likely to vary considerably for each business depending on land type, holding size, altitude, food production capacity, presence of protected predators, natural features etc. Current schemes are too prescriptive and should be replaced with a broad range of measures to suit all land types. Each farm business should be encouraged and incentivised to build a bespoke biodiversity action plan reflecting and building on existing habitats and conditions available on farm.” - Individual

A lack of biodiversity data was raised by several respondents. Respondents suggested that a baseline audit at regional or individual farm level would help to identify which actions are needed, and on-going data collection would help to monitor progress.

Some advocated for farms to make a Whole Farm Plan to ensure that actions taken benefit the entire farm and do not have any unintended negative consequences. Others urged for collaboration between farmers and external organisations such as environmental groups across localities or region, to identify and implement a consistent approach to biodiversity.

5. Just Transition

The Farmer Led Groups discussed agriculture's contribution to the Just Transition, where Scotland's approach to achieving net zero carbon emissions delivers fairness and tackles inequality and injustice.⁴ This chapter presents an analysis of respondents' views on the opportunities and barriers for farmers, crofters and land managers in a Just Transition.

Q4.1: What do you see as the main opportunities for crofters, farmers and land managers in a Just Transition to a net zero economy?

Q4.1 received responses from 273 respondents, with commercial benefits, sustainable food production and environmental benefits were the most commonly identified opportunities.

Commercial benefits

Commercial opportunities arising from a Just Transition was the most prevalent theme across responses to Q4.1. Many respondents predicted that implementing more sustainable practices could enhance the profitability of farms and crofts by enabling them to charge a premium for goods produced to high environmental and animal welfare standards. Similarly, respondents felt there were opportunities for farmers and crofters to reduce their production and selling costs. This could be achieved through, for example, improved livestock health and efficiency, and a focus on local markets and shorter supply chains with lower transport costs and fewer intermediaries.

Several comments focused on opportunities for diversification into new markets such as green or agro-tourism or planting trees for timber or fruit production. Respondents suggested this could also bring previously unused or unproductive land back into use. A few observed that farmers might generate additional revenue by selling carbon credits to other businesses, but there was also opposition to this because it could support high-polluting industries.

“Biodiversity rich farms can attract recreational visitors and tourism which provides opportunities for farm business diversification.” – Scottish Environment Protection Agency

Opportunities to access government funding were highlighted by several respondents who called for fairer and more equitable distribution of funds and a clearer link between funding and environmentally-friendly practices. There was a view among some that government funding could incentivise improved practices. Some identified opportunities to use funding to explore and test new practices focused on reducing carbon emissions, for example, dual purpose animals, circular agriculture methods, and alternatives to fossil fuels.

Sustainable food production

Many respondents highlighted that farmers, crofters and land managers have a crucial role in ensuring sustainable food production. Their comments typically centred on the potential for a Just Transition to reduce Scotland's carbon footprint and create opportunities for

⁴ <https://www.gov.scot/groups/just-transition-commission/>

consumers to access affordable, healthy and local produce, with reduced reliance on imported goods.

“A Just Transition to a net zero and nature positive economy would help create a food system that works better for food producers, Scotland’s natural environment and climate as well as consumers.” – Scottish Food Coalition

Environmental benefits

Environmental benefits were highlighted by several respondents as a key outcome from a Just Transition. They reflected that farmers, crofters and land managers can contribute to environmental improvements including enhanced biodiversity, reduced greenhouse gases, cleaner water, more pleasant landscapes and climate change mitigation more widely. Respondents observed this will create a healthier living environment as well as more productive land for agriculture. Some respondents noted that working towards net zero would help make farms and crofts more sustainable and resilient to climate change, protecting them for future generations.

“Increasing biodiversity brings a much more healthy and productive environment which is very much better for us all.” - Individual

Other socio-economic benefits

Some respondents noted opportunities for job creation, particularly in rural areas; and the potential to attract new entrants to the sector. A few explained that sustainable practices can be more labour-intensive, so farms will need more workers. Other job opportunities mentioned include hedge and woodland planting and maintenance, and employment in any tourism activities which stem from a more diverse farming sector.

The potential of a Just Transition to drive skills development in sustainable farming and land management practices was mentioned by some respondents. A few highlighted opportunities to diversify land ownership and promote more community ownership.

Agriculture’s contribution to a Just Transition

Agriculture’s contribution to a Just Transition was also discussed by some respondents. They described different approaches including: using agricultural land to promote biodiversity and contribute to carbon sequestration, and collaborating with other farmers to share learning and achieve a Just Transition. These themes have been covered in detail at other questions, and so a brief summary of these comments is provided in Appendix B.

Q4.2: What do you see as the main barriers for farmers, crofters and land managers in a Just Transition to a net zero economy?

There were 285 responses to Q4.2. Respondents identified the main barriers for agriculture in a Just Transition as: financial challenges and funding (see Chapter 3); ingrained attitudes and practices; and lack of knowledge and skills (see Chapter 9).

Financial considerations and government funding

The most prevalent barrier by far in response to Q4.2 was the financial cost of a Just Transition to net zero. While respondents identified the potential to reduce farmers' costs, comments in response to this question pointed to the funds required to incorporate cleaner fuels, invest in low carbon machinery, introduce new cattle breeds, and finance training for farm workers. A potential loss of productivity and income if farms reduce the proportion of their land used for production was also highlighted. Several noted this could negatively impact farmers' profits and present a risk to farms' financial viability and existence.

“The small and decreasing profit margins in agriculture leave farmers feeling that they have no choice but to undertake less than ideal practices in order to survive. Major transitions are too risky to consider unless there is an urgent need; when there is an urgent need, they may not have the financial resources to attempt something new.” – James Hutton Institute

To address these financial challenges, several respondents highlighted the importance of financial support from the Scottish Government to fund a Just Transition. Most comments related to funding for farmers, although a few suggested alternative financial incentives such as tax breaks or low interest loans.

While government funding was identified as an important resource for farms, some respondents expressed negative views of funding arrangements. Criticisms included a perception that the criteria for Scottish Government payments encourage intensive farming methods, which focus on maximising production rather than sustainable practices. Other views included that the area-based payment system disproportionately favours large landowners, and that funding application processes can be bureaucratic and confusing.

“The best encouragement is financial, hence subsidies for arable, forestry and turbines should be greatly improved while reducing subsidies to livestock farming to zero and recognising that global greenhouse gas emissions is a major externality associated with livestock farming.” - Individual

Ingrained and established attitudes and practices

Many respondents identified difficulties in persuading some farmers to move away from traditional or conventional methods towards sustainable practices. This was the second most prevalent theme in response to Q4.2. Respondents felt that farmers may be reluctant or unable to change from methods that have been in place for generations.

Knowledge and skills

The sector's lack of knowledge and the skills required to achieve a Just Transition was another common theme. Respondents reflected on the need for enhanced knowledge of climate friendly practices and for farmers to improve or gain the skills to implement these. Many called for more advice and training opportunities to support farmers and crofters to make the transition to net zero, particularly given the scale and pace of change required.

Government policy

Several respondents including individuals, agriculture and food organisations and environmental organisations noted perceived shortcomings in the Scottish Government's agriculture policy which could act as barriers to a Just Transition. These included concerns and uncertainty over the broad direction of agricultural and Just Transition policy, conflicting policy priorities, and a need for long-term planning. There were also calls for the Scottish Government to place more value on the sector and engage more with farmers to increase understanding of the issues facing the industry.

Tenant farmers and issues around land ownership

Challenges faced by tenant farmers in achieving net zero were discussed by several respondents from individuals, agriculture and food organisations and environmental organisations. Their comments explained that these farmers may be unable to change their practices or land use under the terms of their tenancy agreement, even if they wish to. Some respondents raised other issues related to land ownership more widely. There were suggestions that the concentrated land ownership in Scotland by a small number of landowners could act as a barrier to achieving a Just Transition. A few specified that more community ownership or control of land could aid a Just Transition.

Carbon trading was a barrier identified by some individuals and food and agriculture organisations. Respondents noted that large businesses can purchase land at high prices, then plant forestry to offset their carbon emissions. This reduces the amount of land available to existing farmers and individuals looking to enter the agriculture sector. It can also inflate land values, potentially making the acquisition of land more difficult for farmers. The Law Society of Scotland suggested a legal regime for measuring and trading carbon units could be useful.

Consumer attitudes

Some respondents commented on challenges posed by consumer attitudes, expressing concern that the public does not fully understand the changes required to achieve a Just Transition, nor the importance of doing so. Respondents voiced fear this will be reflected in continued preferences for cheaper food and a lack of willingness to pay more for goods to cover the costs of high environmental standards.

Less commonly mentioned barriers

A list of less commonly mentioned barriers is provided in Appendix B. These included: A perception in the agriculture sector that it is being blamed for climate change more than other sectors; the increased workload associated with implementing changes, and a perception that there is a disproportionate focus on tree planting at the expense of other actions that can be taken to contribute to a Just Transition.

6. Sequestration

The consultation presented the Farmer Led Groups' suggestions on how to increase carbon sequestration i.e. removing carbon from the atmosphere through storage in soil or vegetation. The question focussed on how to adapt land use to increase sequestration and help meet climate change targets.

Q5.1: How best can land use change be encouraged on the scale required for Scottish Government to meet its climate change targets?

Q5.1 received 292 comments - the most of all consultation questions. These covered changes in land use that respondents felt were needed or would like to see, and calls for financial incentives, education and a joined-up approach to encourage land use change.

Tree planting and forestry

The most common theme in response to Q5.1 was discussion of forestry, and mixed views were evident. Many respondents called for more woodland and hedgerows to be planted. Most noted the importance of an agroforestry approach where trees or shrubs are grown around or among crops or pastureland, and the principle of 'the right tree in the right place', where trees are sensibly integrated into land use. A small number expressed support for large scale forestry, and recognised that landowners can gain financially from this. However, many respondents raised concerns over excessive or blanket plantations, particularly of non-native or coniferous trees. Some argued these do not reduce carbon emissions in the long-term; others highlighted the damage large plantations cause to rural landscapes, economies and communities. Specifically, some argued that promoting large scale forestry reduces the land available for food production, and asked for consideration to be given to balancing this with climate change targets.

"STFA recognised the need for more tree planting but 'the right tree in the right place' adage has never been more pertinent. We would favour enhanced support for smaller scale woodlands and agro-forestry allowing integration within farming systems rather than the loss of tracts of productive land and the farming opportunities which go with them." – Scottish Tenant Farmers Association

Financial incentives

Using financial incentives was the second most prevalent theme. Most made general comments advocating the use of grants, subsidies or rewards to help encourage uptake of the various land use changes outlined in this chapter. A few highlighted that farmers will need to be confident they will be better off financially as a result of any change in land use.

Peatland

Several respondents reiterated the need to protect or restore peatland. They highlighted the value of peatland in sequestering carbon, and called for peatland used for forestry or production to be returned to its natural form. Related to this, a small number called for the protection or restoration of wetlands, saltmarshes and riversides.

Education and support

Providing education, training, guidance and support to encourage land use change was raised by several respondents. In particular, there were calls for examples of best practice or the actions to be taken to be shared more widely to improve understanding.

A joined-up approach to land use planning

Several respondents commented on land use planning. Some detailed the important role of strategic planning and using official planning processes, in particular Regional Land Use Partnerships (RLUPs) as a means to balance competing demands and encourage collaborative working at scale. A very small number suggested RLUPs should be involved in regulation and be part of the agricultural payments system. A few noted apparent policy conflicts e.g. encouraging agriculture to improve biodiversity but also encouraging housebuilding on greenfield sites, or forestry policy in conflict with peatland restoration. More generally a small number highlighted the need to consider Scotland's landscapes as a whole and not make decisions on land use which could damage these.

“Encouraging the necessary land use change at the scale required will need strategic land use planning at national and regional level through processes such as the National Planning Framework, Regional Land Use Partnerships and Regional Land Use Frameworks. In relation to the latter, coverage is required for all regions of Scotland and faster progress to produce RLUFs is needed.” – multiple individuals and organisations.

Livestock and grazing

Mixed views were expressed on livestock and grazing. Some, mostly individuals, called for livestock numbers to be reduced or for an end to animal agriculture. Conversely, a slightly smaller proportion of mostly individuals suggested that grazing livestock numbers should be increased, particularly in upland areas where this was seen as a better use of land than forestry. Some called for more research into, and recognition of the importance of, grassland in sequestering carbon, and suggested using land for grazing should be encouraged.

Landowners and activities on large estates

Calls to change land management practices on large estates was another theme in comments. There was criticism from a few respondents about large landowners receiving a disproportionate level of funding, removing tenant farmers and pursuing forestry. Some urged for an end to land use for hunting, particularly grouse moors. A small number called for muirburn⁵ to be banned. Some respondents championed wider land reform. A few urged the Scottish Government, local authorities and other public bodies to lead by example by managing land it owns or controls in ways that will help meet targets. Others suggested more land should be in public or community ownership.

⁵ The burning of heather or other vegetation on moorland

7. Productivity

This chapter examines if and how agricultural businesses should receive financial support, linked to improved productivity over time. The consultation paper suggests productivity should be considered in relation to efficiency, with the aim of creating a sustainable agricultural industry that protects rural jobs, while decreasing greenhouse gas emissions, shortening the supply chain and increasing biodiversity.

Q6.1: Would incentives for farm plans specifically targeting flock/herd health, soil health, & crop health (for example) demonstrate real improvements in productivity over time?

Among the 277 responses to Q6.1, key themes were: support for incentivising targeted farm plans; and concerns around a sole focus on productivity.

Support for incentivised farm plans

The most common theme was support for incentivising targeted farm plans. Many respondents highlighted the value of creating farm plans to improve soil, animal or crop health. They argued that these plans could generate efficiencies leading to greater productivity, while minimising the impacts of farming on greenhouse gas emissions and increasing biodiversity and sustainability. Respondents stated that farm plans should be integral to businesses and that those who were not using them should do so in the future.

“No doubt about this. And as new science emerges then these incentives can be tweaked. There is no argument that soils have been hit hard by increased mechanisation to improve productivity, however given the economic imperatives that ever-increasing costs and the clamour for cheap food generate it is understandable that things have gone this way. But we need to find a way to balance all of the competing pressures and balance financial and environmental sustainability. Implementing the correct programmes and incentives would, ideally, be about balancing these, often, conflicting pressures.” – Meikleour Trust

Confusion about the term ‘productivity’

Uncertainty about the definition of productivity was the second most common theme in responses to Q6.1 and the most prevalent theme in responses to Q6.2. Some respondents noted they were unable to answer Q6.2 due to confusion about the definition.

“There appears to be some confusion over the meaning of “productivity” in this context. It needs to be made clear that the reference is to the ratio between inputs and outputs, not to the quantity produced.” - Rare Breeds Survival Trust

“Not clear what is behind this question. If productivity is defined in natural capital terms then the answer is emphatically ‘yes’. If productivity is defined in terms of food and fibre, regardless of the environmental impact associated with its production, then the answer is emphatically ‘no’.” – Individual

Respondents were unsure if productivity was an indicator of profitability, higher production figures, or if it could also encompass environmental impact. Those who defined improvements in productivity as simply ‘producing more’ suggested such incentives would work against Just Transition targets. For example, focussing on increased output could encourage farmers to adopt practices such as increased agrochemical use or greater herd size, which are environmentally harmful and do not support animal, crop or soil health. Respondents mentioned the need to define productivity as ‘quality over quantity’.

“I think we would have to be very careful not to fall into the old trap of improving productivity by scaling up. This tends to have adverse effects environmentally. Measures for productivity would have to be carefully thought out to include environmental and long-term benefits.” – Individual

Other respondents suggested farm plans should consider profitability alongside productivity. A few cited studies which have shown a decrease in input may reduce productivity but increase overall farm profit. Others noted that if farm plans concentrated on profitability, it could increase uptake by farmers.

Importance of measuring, monitoring and implementing plans

Many respondents supported incentivising farm plans, but only if they are outcome-based, and measured and monitored to ensure recommendations are being implemented. There were calls for incentives to be linked to evidence of improvement.

A need for continued guidance

Support, specialist advice, training, ‘farmed-led education’ and Continued Professional Development were highlighted by several respondents as important to the successful drafting and implementation of farm plans. These are addressed in detail in Chapter 9.

Issues that could be addressed by farm plans

Several suggested issues to address in farm plans. These included: agreement with a minimum standards for soil, crop and animal health, shorter supply chains, support for a shift to organic farming, gene editing, better feed for lowered greenhouse gas emissions, rewilding and enhanced biodiversity, and new technological innovation.

“We would caution against a definition of productivity which does not consider animal health and welfare alongside efforts to increase economic or environmental outcomes. Agriculture cannot be considered productive if it is achieved at an unacceptable cost to animal welfare.” – British Veterinary Association

Challenges around incentivising farm plans

Challenges around incentivising farm plans were raised by some respondents. Their concerns included: that some in the sector dislike and do not engage in data collection; a potential administrative burden; long timescales for improvement or change to be evident; impractical, unprofitable or unachievable plans; and that Scotland’s diverse landscapes require nuanced plans. Some mentioned that many farmers are already implementing farm plans and may find it difficult to increase productivity further. They stressed that these farms should not be disadvantaged or penalised under any incentive scheme.

Q6.2: Should future support be dependent on demonstration of improvements in productivity levels on farm? If so, how would this be measured?

Among all (314)	Yes	No	Don't know	No answer	No. of comments
Number	66	176	54	18	258
%	21%	56%	17%	6%	

Just over half (56%) disagreed that future support be dependent on improvements in productivity levels. One fifth (21%) agreed and just under a quarter (23%) were unsure or did not answer. A majority of individuals and organisations disagreed (53% and 63% respectively), and the percentage of individuals in agreement was almost double that of organisations (24% and 13% respectively).

A clearer definition of 'productivity'

The most frequently identified theme in responses to Q6.2 was a request for a clearer definition of productivity, as covered in the analysis of the previous question. This included a majority of the respondents who agreed with the proposal to incentivise the use of farm plans, but caveated their agreement with a nuanced definition of productivity.

Measure environmental impact over productivity

A preference for support based on positive environmental impact over time was the second most prevalent theme in comments. Respondents highlighted specific support for farms who are enhancing biodiversity and working toward climate targets.

“Future agricultural support should aim to protect and enhance biodiversity, address climate change and foster social equity for food producers, rural communities and consumers.” – Multiple individuals and organisations

While these respondents believed that productivity could be used as a measurement alongside environmental goals, several argued productivity was a ‘red herring’, and could cause long term environmental damage to those farms who focused only on output.

“Productivity is a key factor in the current system for dishing out subsidies. This needs to be replaced as the world has moved on and productivity cannot come "at any cost" to the environment or biodiversity or carbon or greenhouse gases. it may well be necessary for farms to decrease productivity in the near future as they move away from chemicals, artificial fertilizers and industrial farming.” - Individual

Productivity and other measures

Other measurements to consider alongside productivity were also suggested. Several respondents noted the need for a nuanced definition of productivity that includes integrated and holistic approaches and considers productivity as social, economic and environmental. It was suggested that: productivity needs to be financially viable, specifically in relation to the impact on rural livelihoods; support for improved productivity

needs to consider the time it takes impacts to become measurable; and productivity as a measurement needs to be scalable to reflect different farm sizes and geography.

Several respondents suggested categories of productivity to measure. A full list of suggestions is in Appendix B, but this included: crop output, quality and health, reviewing farming techniques being used and assessing efficiency measures.

Some respondents highlighted measurements to consider instead of productivity. These included: efficiency; profitability and financial viability (including consideration of the Maximum Sustainable Output⁶); increased environmental benefit including greenhouse gas reduction and enhanced biodiversity; health and welfare of crops and animals; farmer and employee satisfaction; and future resilience.

Challenges in measuring productivity

Respondents noted challenges farmers may face in demonstrating improved productivity to receive support. Some suggested that if improved productivity was the key metric for support, the farms already using best practice would be disadvantaged as further improvements to productivity would be difficult or impossible.

“As long as those farmers who have been working hard to make improvements over the years (as any good businessperson would do) do not get penalised for not being able to make as large a measurable improvement as someone who is not farming productively. Credit should be considered for those who have already made the improvements and to encourage others to reach the same level.” – Individual

“Using ongoing productivity targets may encourage bad practice to meet them. Farms running at full productivity for good practice, e.g. rotation that involves a mix of pasture, crops and fallow land...and those already farming with nature should also be rewarded, not excluded because they can't improve as they are at the top of their game.” – Individual

Some respondents at both questions noted the unforeseeable impact of external factors on productivity. Weather, disease, predation and market factors like global commodity prices and free trade agreements were shared as examples of forces that could negatively impact productivity, even among those attempting to meet targets.

The challenge of adopting a standardised approach to measurement was mentioned by some respondents. They described the impossibility of comparing productivity improvement across different types or sizes of farms, or geographical areas. One suggested financial support should be based on comparisons to industry averages.

Respondents suggested support should be based on measurable changes in outputs and would require agreed methods to observe, measure and record improvement over time. A small number of respondents suggested all measurements and reporting be conducted by an independent body of researchers to ensure transparency and accuracy.

⁶ Maximum Sustainable Output is where a farm business manages their inputs and outputs to get maximum returns both for nature & business.

8. Research and development

Alongside a new strategy for research of the environment, agriculture, and natural resources, the Scottish Government continues to support initiatives to make agricultural research accessible, including, for example, the SEFARI⁷ Gateway. This chapter analyses responses about additional research needed to support the agriculture sector.

Q7.1: In light of ongoing research activities supported by the Scottish Government and the 2022-2027 research strategy, are additional measures needed to ensure research is supporting the agriculture sector to meet its climate change targets?

Among all (314)	Yes	No	Don't know	No answer	No. of comments
Number	206	21	70	17	225
%	66%	7%	22%	5%	

Two thirds (66%) agreed additional measures were needed to ensure research supports the agricultural sector to meet its climate change targets. Just under a quarter (25%) were unsure or did not answer; 7% disagreed. Three quarters (74%) of organisations agreed with the need for further research. Almost all who disagreed were individuals.

More research needed

The most prevalent theme in responses was support for more research, which was raised by individuals and most types of organisation. Most did not provide additional detail, but stressed that progress could only be made through research. A few respondents supported increased funding for research projects, particularly those that filled gaps resulting from the loss of EU funding.

“The role of research and development in enabling agricultural businesses to deliver on sustainable food production and climate ambitions cannot be overstated, nor can be the importance of improving knowledge transfer and ensuring research outcomes are applied.”
– NFU Scotland

High-quality, accessible, and practical research

Some respondents noted the importance of disseminating research to farmers and supporting them to implement research recommendations. While respondents acknowledged the work being done in universities, research centres and by the government, they highlighted a need to close the gap between what researchers know from data and evidence and what is actually being done by farmers.

“There has been a considerable amount of potentially very useful research completed, but it is not clear how the findings of the research have been promoted and used in practice.”
– Scottish Environmental Protection Agency

⁷ Scottish Environment, Food and Agriculture Research Institutes

The need for clear and accessible communication of research to support farmers to implement new plans and actions was highlighted by some respondents. A few highlighted educational outreach or field demonstrations as important to create change. Similarly, some noted the importance of practical research that farmers could use, specifically highlighting the need for more 'near-market' research.

Others emphasised the importance of ensuring research is unbiased and of high-quality. They recommended distancing research from industry input and commercial investment.

Collaborative and co-designed research projects

Some respondents stressed the importance of collaborative or co-designed research which includes farmers' perspectives and engages with those working in the industry. They argued farmers should be involved in research planning, but also as leaders in the experimentation process. Some felt this could ensure research stays ahead of even the most progressive industry leaders.

Areas where further research is necessary

Many identified areas for further research, presented below by most to least frequency of suggestion:

- Agroecological farming including circular economy strategies.
- Carbon sequestration.
- Biological research e.g. genetic engineering/plant and animal breeding, health of soil, crops and animals, disease control, parasite control.
- Impacts of climate change including natural flood management, future-proofing agriculture, crop resilience.
- Biodiversity and conservation research including land management, agrichemical usage, and forest and hedgerows regrowth.
- Methane inhibitors and feed quality.
- New technology e.g. low emissions equipment, robotics, composting technology.
- Geographically based research, considering the differing local challenges faced by farmers throughout the country.
- Animal health and welfare research including epidemiology and veterinary innovation
- Supply chain research including downstream value chains, life cycle analyses, consumer demands, and support of local farm staff.
- Social research e.g. consumer behaviour trends and community-land dynamics.

9. Knowledge and skills

This chapter presents an analysis of Q8.1, Q8.2 and Q8.3 which explore knowledge and skills in the agricultural sector.

Q8.1: What importance do you attach to knowledge exchange, skills development and innovation in business?

Q8.1 received 287 open-text responses. Comments were largely positive, with most respondents attaching a high level of importance to knowledge exchange, skills development and innovation in agriculture. Some responses covered issues that were more relevant to the other questions in the knowledge and skills section of the consultation; these comments have been considered in the analysis of Q8.2 and Q8.3.

High importance of knowledge exchange, skills development and innovation

The main theme among responses to Q8.1 was recognition of the value of knowledge exchange, skills development and innovation in business. Many respondents described them as vital, critical, salient, fundamental and essential for the future of the agricultural industry. Some referenced what they perceived as knowledge and skills gaps in the industry, including land management, ecology and regenerative agriculture.

Several respondents felt that knowledge, skills and innovation will be crucial in achieving transformational change in agriculture, helping the sector to embrace modernity and move on from established, old-fashioned or traditional practice. Others agreed that they help to ensure that the sector adopts best practice and stops ineffective methods.

Some discussed how knowledge exchange, skills development and innovation are particularly important in agriculture. They cited the broad and growing knowledge base required by farmers, rapidly evolving technologies, and the complex policy and legislative landscape of the sector which farmers and crofters need to keep up to date with. In these comments, respondents emphasised the importance of innovation, noting that the sector would stagnate and no new techniques or technologies would develop without it.

Particular value was attached to grass roots knowledge exchange led by experienced farmers. Some argued that collaboration, peer-to-peer learning and networking events are key to driving knowledge exchange in the sector.

“If we are seriously considering transformational change, knowledge exchange, skills development and innovation in business will be absolutely critical to success.” - Individual

“Peer-to-peer learning through, for example, farm visits, networking groups and online training are most important to help farmers build or develop their skill sets.” - Individual

One respondent drew attention to the importance of the Scottish Government’s investment in knowledge and skills in the farming sector in recent years, particularly the provision of free access to Open University courses. They noted that this has led to an increase in skills, innovation and confidence among the workforce.

Important for environmental targets

Some mentioned that knowledge exchange, skills development and innovation will be critical to maximise the agricultural sector's impact on achieving the Scottish Government's environmental targets and reversing the negative effects of climate change.

Impact on health and wellbeing

Attention was drawn to the impact that knowledge and skills can have on the health and wellbeing of the agricultural workforce. One noted that effective training can improve health and safety standards within the sector and reduce the number of workplace incidents leading to ill health, injury or death. A few mentioned how training courses and networking events provide opportunities for social interaction which can have positive impact on the mental health of the workforce.

Negative comments

Very few respondents discounted the importance of knowledge exchange, skills development and innovation in their comments. Those who did, who were mostly individuals, stated that there are currently other more important priorities for the agricultural sector, e.g. sustainable food production, meeting demand, profitability and attracting and recruiting new members of the workforce.

Others cited barriers which they feel undermine the development of knowledge and skills. These included: resistance to change in the sector, reluctance to undertake formal training and learning; a lack of relevant and high quality training and upskilling opportunities; and business owners' hesitance in exchanging knowledge with competitors.

Q8.2: What form should tailored, targeted action take to help businesses succeed?

Q8.2 received 246 open-text responses. Most respondents reaffirmed the need for targeted, tailored action. They advocated for greater provision of individualised support, facilitating peer-to-peer knowledge exchange, setting up local discussion groups and improving access to knowledge exchange and skills development opportunities.

Individualised support

The most prevalent theme in responses to Q8.2 was demand for more individualised support for farming units, including the establishment of mentoring schemes and funding expert advisors who can provide farms and crofts with one-to-one advice and support them to design individualised business development plans. A few suggested that this support could be delivered through the Farming Advisory Service, SEPA, SRUC and NatureScot. It was stressed that support needs to be tailored to the size, location and type of farm.

“Support through the provision of well-trained farm advisors, as well as support for young people entering the agricultural sector. Farmers must have access to advice that is professional, objective and evidence-based from advisors who are competent to deliver this.” - Chartered Institute of Ecology and Environmental Management

Peer-to-peer knowledge exchange

Many respondents advocated for more peer-to-peer knowledge exchange and learning initiatives. Suggestions included open days, local discussion groups/peer forums and collaboration programmes. Monitor farms⁸ were celebrated as successful examples of peer-to-peer, farmer-led knowledge exchange initiatives. Most felt that local or regional hubs would be the best medium for sharing information and promoting best practice; however, a small number also requested more national events.

“Seeing something in practice on farm is the best way to see things and to understand it. Using monitor farms and discussion groups is a great way of doing this and sharing knowledge which I have had some experience and I’m keen to do more of.” – Individual

Improving access to Continuous Professional Development (CPD)

The value of CPD was described by many respondents. They called for more high quality, relevant and specialised training for the workforce, at both beginner and advanced level. Some stressed the importance of creating opportunities and resources for learning which are accessible and widely available to the workforce. Respondents highlighted the need for free or low-cost training opportunities which are either available online or require minimal travel. A few felt that CPD opportunities should be funded or subsidised by the Government. A more detailed analysis of the role of CPD is provided under Q8.3 below.

Information and advisory services

Many respondents called for enhanced information and advisory resources to be made available to the agricultural workforce. They suggested that farmers should have access to free professional, objective and evidence-based advice.

“Creating the correct advisory and support structure is critical to enable businesses to succeed whilst going through a period of transformation. The critical elements to a successful advisory and support structure include business advisory capacity, skilled technical expertise, peer to peer learning opportunities, CPD, supply chain discussion and knowledge sharing, and technical and business planning.” – Quality Meat Scotland

Attracting new entrants

Some respondents identified a need to attract new members of the workforce and suggested this could be done through creating more apprenticeships, introducing agriculture into school curriculums (e.g. a National 5 in Food and Farming) and organising school careers fairs which promote agricultural jobs.

Marketing

A few responses focussed on communications and advertising; some felt it was important to promote opportunities for CPD, while others stressed the importance of communicating the benefits of taking part in knowledge exchange and skills development to the sector.

⁸ Nine monitor farms were established in Scotland as part of a joint initiative by Quality Meat Scotland (QMS) and AHDB Cereals & Oilseeds with funding from the Scottish Government. They aimed to improve the sector through practical demonstrations, the sharing of best practice and the discussion of up-to-date issues.

Q8.3: Should continuing professional development be mandatory for businesses receiving public support funding?

Among all (314)	Yes	No	Don't know	No answer	No. of comments
Number	154	86	57	17	254
%	49%	27%	18%	5%	

Half of respondents (49%) agreed that continuing professional development (CPD) should be a mandatory condition for businesses to receive publicly-funded support. Just over a quarter (27%) disagreed, and the remaining quarter were unsure (18%) or did not answer (5%). Similar levels of agreement were recorded by individuals (50%) and organisations (46%). However, individuals were more likely to disagree with mandatory CPD (compared to 21% of organisations), and 13% of organisations did not answer. Follow up comments to Q8.3 were provided by 254 respondents; the main themes are set out below.

Support for making CPD mandatory for public funding

The most common theme among responses to Q8.3 was support for making CPD mandatory for public funding. Many respondents discussed the benefits of CPD for the agricultural sector, arguing it leads to increased efficiency and sustainability of farms through the wider adoption of best practice, increased skills among the workforce, the implementation of new techniques and technologies, and the fostering of innovation and collaboration. Some pointed out that technology in the farming industry is constantly evolving and therefore CPD is necessary to keep up with best practice. The importance of education in sustainable farming practices given the agricultural sector's role in addressing climate change was also emphasised. Others supported the proposal as they felt it would ensure that public money is invested in businesses which are committed to improving the sustainability of their operations and making positive change.

Some suggested how CPD could be best delivered in the agriculture sector. They felt it should be affordable, easily accessible with online options, farmer led, with content that is relevant and tailored to different audiences and regions. A few suggested mandatory topics for training, including biodiversity, animal welfare and sustainable soil management.

“There are multiple professions for whom continuing professional development is not only mandatory but a prerequisite for continued certification. As such, it would not be unreasonable to hold the agricultural sector to these same standards.” – Royal Society of Edinburgh

CPD should be voluntary

However, several argued that CPD should be undertaken on a voluntary basis, without consequences for those who do not wish to engage with formal, government-approved training or upskilling. Some of those who disagreed with the proposal did recognise the benefits of training and upskilling, but argued that it should be encouraged rather than made a mandatory condition for public funding. They suggested that uptake could be increased by offering free or subsidised, high quality, relevant and convenient CPD opportunities throughout the year. A few suggested that CPD should be incentivised.

Preference for informal learning opportunities in the sector

The proposal was described by some respondents as being at odds with the culture of the agricultural sector, which values peer-to-peer knowledge transfer and context-based learning, and embraces more informal avenues of professional growth and development.

"Since so much professional development within the agricultural sector is informal, peer to peer based knowledge sharing, this approach would be deeply inappropriate." - The Galloway Cattle Society

Doubts over value, relevance and quality of CPD opportunities

Several doubted the value of undertaking CPD and felt that there are more urgent priorities for the agriculture workforce including sustainable food production, meeting demand, profitability and attracting and recruiting new members of the workforce.

Some expressed concern that making CPD a formal requirement would reduce it to a meaningless box-ticking exercise, with many only attending courses to ensure they are not excluded from publicly funded support.

"Yes, but only if they are useful, specific and worthwhile to the participants." – Farmers for Stock-Free Farming

"Mandatory professional development will in practice become nothing more than a record of attendance, no matter what the original good intention was." – Individual

Doubts were raised over the quality, suitability and relevance of CPD opportunities available in the sector, with a few commenting on the lack of advanced training courses available in Scotland for experienced farmers.

Accessibility and affordability of CPD

Some described the process of undertaking CPD as burdensome, expensive and time consuming. They discussed the disproportionate level of difficulty in accessing CPD for those who operate small, remote or rural farms, commenting on: long distances to travel to in person courses; poor quality broadband access (if virtual CPD); significant expenditure compared to larger, more profitable businesses; and a lack of resources (e.g. fewer staff to cover essential duties).

Assessment and monitoring

Questions were raised about which CPD pathways and courses would satisfy the minimum criteria to receive public funding if the proposal were taken forward. Some stressed that it would be important for a broad selection of CPD opportunities to be deemed eligible (e.g. recognition of informal peer-to-peer knowledge transfer as CPD), with discretion built into the process (e.g. showing understanding that smaller/less profitable operations cannot afford to invest as much in CPD as larger farms). A few respondents also queried how compliance with the requirement would be monitored and what measures would be put in place to check that those in receipt of public funding were actually complying with the requirement.

10. Supply Chains

This chapter examines respondents' views on the green credentials of Scottish produce and the potential role of farm assurance in the future.

Q9.1: How can the green credentials of Scottish produce be further developed and enhanced to provide reassurance to both businesses and consumers?

Q9.1 received 274 responses. The most common themes were: shortening supply chains; encouraging consumers to shop locally; and having clear, transparent product labelling.

Shorter supply chains

Calls for a shorter supply chain was the most prevalent theme among responses to Q9.1. Respondents argued this would encourage food production and consumption to centre on local suppliers home grown produce, and greatly reduce the demand for imported goods. A need for transparency and traceability in the supply chain to highlight green credentials was emphasised.

“Scotland’s produce, supply chains must be short and transparent. The climate importance of local food is often underestimated because transport emissions are the only metric used to measure this. However, local sales also tend to involve significantly less processing, packaging, refrigeration and waste. In addition, shorter supply chains can ensure standards of production are high in terms of other factors such as conditions for workers and animal welfare.” - CSA Network UK

Changing consumer behaviour

Many respondents described how changing consumer behaviour will be crucial in improving the green credentials of Scottish produce. Comments from mostly individuals and a range of organisations described different ways this could be done:

- A common suggestion was for the Scottish Government to embark on a nationwide campaign to encourage consumers to purchase more locally grown produce and reduce their consumption of imported goods. Some felt it was important to encourage the public to adopt a more ‘seasonal’ diet, with more understanding of what products are available at particular times of year, and adjustments of expectations and demand.
- Several called for clear product labelling to show consumers the air miles and carbon footprint associated with products. Respondents felt this would encourage consumers to make more ‘green’ decisions when shopping.
- There were calls for more education around the environmental benefits of buying local produce. A few expressed a view that consumers need to be educated on the environmental cost of importing goods which cannot be grown locally.
- One respondent suggested introducing a tax on imported foods.

“Incorporation of accurate (and independently verified) [Greenhouse Gas] emissions figures as a prominent part of food labelling and marketing would provide reassurance to consumers and help drive both behaviour change and emissions reductions.” - Community Woodlands Association

However, some discussed the challenges of changing consumer behaviour, noting that consumption is often motivated by price and the difficulties in convincing consumers to opt for more expensive local produce over cheaper imports.

Changes to farming practices

Some respondents called for changes to existing farming practices such as reduced pesticide, herbicide and chemical use, committing to regenerative systems of soils management and food production and using less intensive farming systems.

Organic farming was supported by some, who described how this would benefit the climate, public health, biodiversity and air, water and soil quality. There were calls for Scottish Government investment to support farmers to transition to organic farming.

Public sector procurement

Some respondents felt that public sector procurement could be used to develop the green credentials of Scottish produce. They argued that public bodies’ buying power can influence producers, for example by ensuring that contracts are only awarded to suppliers who commit to set eco-friendly and sustainable practices.

Other themes

The consultation paper suggested that action is required by the whole food supply chain, not just primary producers. This view was endorsed by some respondents, who described how co-operatives and greater collaboration could enhance the green credentials of Scottish produce.

Others noted that farm assurance schemes which set high environmental standards can be used to develop the green credentials of Scottish produce. More detail on respondents’ views on farm assurance is included under Question 9.2 below.

Q9.2: Should farm assurance be linked to requirements for future support?

Among all (314)	Yes	No	Don’t know	No answer	No. of comments
Number	114	95	82	23	224
%	36%	30%	26%	7%	

Over a third of respondents (36%) agreed that farm assurance should be linked to requirements for future publicly funded support. A similar portion (30%) disagreed, and the remainder were either unsure (26%) or did not answer (7%). Q9.2 received 224 open comments in which mixed views about farm assurance were shared.

Benefits of farm assurance

The most common theme in responses to Q9.2 was the benefits of gaining farm assurance. Many respondents explained that farm assurance schemes ensure compliance with high standards of food quality, health and safety, animal welfare and environmental practices. A few noted that assurance schemes require regular inspections which encourage the maintenance of high standards. Some argued that assurance schemes lead to higher consumer confidence and provide a competitive edge for accredited farms.

“The discipline of adhering to an accepted farm assurance protocol will ensure that standards are being maintained. They also provide reassurance to the consumer of the credibility of Scottish produce.” – Individual

“Farm assurance has been an essential tool in regulating production processes across the industry for the past 20 years or more. Without these schemes, processors would have imposed even more of their own standards and created a bureaucratic nightmare for growers. It is vital that all growers producing for the food chain realise the importance of standardised assurance schemes.” – Scottish Agronomy Ltd.

Others supported the proposal as they felt it would ensure a level of accountability over public funding, giving the public confidence that farms which receive financial support are committed to meeting high quality produce, animal welfare and environmental standards.

Calls for farm assurance schemes to be strengthened

Several respondents expressed a view that farm assurance schemes only require compliance with minimum standards and baseline regulations. Their support for the proposal to link support to assurance was conditional on farm assurance schemes being made more robust and having a wider range of requirements. For example, some felt that farm assurance should require higher standards of food quality, animal welfare, sustainability and emissions reduction than the regulatory baseline.

Criticisms of farm assurance

Criticism of existing farm assurance schemes were shared by several respondents, who described them as inadequate, lacking credibility and ineffectual at assuring product quality. Some felt that registering with a farm assurance scheme was a hollow gesture or a tick box exercise. A few described the entire farm assurance system as in need of reform.

“It’s largely meaningless in terms of quality or how the land is managed.” – Individual

Cost and burden of accreditation

Attention was drawn to the expensive and resource-intensive process of successfully registering with farm assurance schemes. Some feared a greater emphasis on farm assurance would put a strain on smaller farms, who would need to commit significant costs and time to become accredited. A few requested that schemes should be made more affordable and less burdensome, or that there should be exemptions made and discretion afforded to smaller units.

“Small farm businesses may face proportionally higher costs of participation in farm assurance scheme.” - NatureScot

Other reasons for disagreement

A few respondents opposed linking farm assurance to future support as they saw it as an unwelcome layer of bureaucracy for farmers. Others expressed opposition to any punitive approaches where those who do not register with farm assurance schemes are denied access to public funding; they argued an incentive-based model would be more successful. Some firmly believed that farm assurance programmes should remain voluntary and without consequence for those who do not participate.

In these comments, other ways of ensuring quality produce and compliance with standards were suggested, including introducing a mandatory labelling scheme and greater involvement from local authority welfare officers e.g. conducting more regular inspections.

Need for simplicity and streamlining

Some stressed the importance of making farm assurance simple for consumers and producers to understand. A few commented on how many different farm assurance schemes there are and suggested combining different standards into one, streamlining the process and simplifying labelling for consumers.

“Farm assurance' is such a woolly concept now as there are so many variations. We need a robust nation wide system that we can all positively sign up to.” - Individual

Less commonly mentioned themes

- A few respondents called for greater support for farmers to register for farm assurance schemes if it were to be linked to access to public support.
- Some respondents said that they did not understand the question, expressing confusion over what was meant by farm assurance or future support.
- There was some discussion about specific farm assurances schemes. Respondents expressed mixed views, with some schemes described favourably and others attracting criticism.

11. Conclusions

A large number of individuals and stakeholders with detailed knowledge took part in the consultation. Reflecting their experience and expertise, this report provides a high-level summary of respondents' perspectives. For more detail, readers are encouraged to look to individual responses where permission was granted for publication⁹.

There was a clear consensus that agricultural businesses which receive financial support from the Scottish Government should be required to undertake baseline data collection, and that data should be collated nationally. This was considered vital to monitoring progress, useful for future planning, and necessary to drive action and policy development. There were, however, calls for data collection to be straightforward and reflect the diversity of farm types, and for clear and accessible training and guidance for farmers on how to collect and use the data. Some questioned if productivity is the best measure of success, arguing that environmental and biodiversity improvements, profitability and efficiency should also be considered.

Respondents were clear that capital funding should be provided for items with a clear link to wider environmental improvement, and not solely to items which reduce greenhouse gas emissions. This included items which could improve biodiversity, land, soil and crop management. Several suggested funding for actions which may improve food production or business efficiency and productivity, given the latter could indirectly reduce emissions.

Many actions to enhance biodiversity were proposed, with the vast majority agreeing this should be incentivised. Views were mixed on the role of forestry, grazing and livestock numbers in carbon sequestration, and there was clear support for the protection of peatland. There were calls for sectoral guidance on land use change, and for a joined-up approach to land use planning. The commercial, environmental and socio-economic benefits to agriculture of a Just Transition were cited. Respondents also highlighted the challenges of funding the actions required, of overcoming established attitudes and practices, and a lack of knowledge and skills in the sector.

Most attached a high level of importance to knowledge exchange, skills development and innovation in agriculture, and there was widespread support for further research. Various forms of education were suggested, including individualised support, peer-to-peer knowledge exchange and improved information and advisory services. Mixed views were evident over whether CPD should be mandatory for businesses receiving public support.

Respondents generally agreed that the green credentials of Scottish produce could be enhanced through shortening supply chains, encouraging consumers to shop locally, and having clear, transparent product labelling. While some supported a role for farm assurance, others disagreed.

The views expressed in the consultation provide a useful evidence base for the Scottish Government to draw on when developing the forthcoming Agriculture Bill.

⁹ Responses are published on the Scottish Government's consultation website: <https://consult.gov.scot/>

Appendix A: Overview of closed question quantitative data

The following table outlines the results for each of the 8 closed questions in the consultation. For each question, the table shows the number of respondents from the total sample of 314 who selected each response, and the corresponding percentage. The number of comments provided to each follow-up open-text question is also shown.

The total sample figures are then followed by the percentage response among all individuals (224) and among all organisations (90) who responded to the consultation.

Question	Base	Yes	No	Don't know	No answer	No. of comments
Q1.1A: Should agricultural businesses receiving support be required to undertake a level of baseline data collection?	No. of all (314)	268	25	14	7	264
	% of all (314)	85%	8%	4%	2%	
	% of individuals (224)	84%	10%	5%	1%	
	% of organisations (90)	88%	3%	3%	6%	
Q1.2A: Should collected data be submitted for national collation?	No. of all	260	20	27	7	250
	% all	83%	6%	9%	2%	
	% individuals	82%	7%	10%	1%	
	% organisations	84%	6%	4%	6%	
Q2.1A: Should capital funding be limited to only providing support for capital items that have a clear link to reducing greenhouse gas emissions?	No. of all	83	200	22	9	241
	% all	26%	64%	7%	3%	
	% individuals	30%	60%	9%	1%	
	% organisations	17%	73%	2%	8%	
Q3.1: Should all farm and crofting businesses be incentivised to undertake actions which enhance biodiversity?	No. of all	281	17	8	8	291
	% all	89%	5%	3%	3%	
	% individuals	90%	6%	3%	1%	
	% organisations	89%	3%	1%	7%	

Question	Base	Yes	No	Don't know	No answer	No. of comments
Q6.2A: Should future support be dependent on demonstration of improvements in productivity levels on farm?	No. of all	66	176	54	18	256
	% all	21%	56%	17%	6%	
	% individuals	24%	53%	20%	3%	
	% organisations	13%	63%	11%	12%	
Q7.1A: In light of ongoing research activities supported by the Scottish Government and the 2022-2027 research strategy, are additional measures needed to ensure research is supporting the agriculture sector to meet its climate change targets?	No. of all	206	21	70	17	224
	% all	66%	7%	22%	5%	
	% individuals	62%	8%	26%	4%	
	% organisations	74%	3%	13%	9%	
Q8.3A: Should continuing professional development be mandatory for businesses receiving public support funding?	No. of all	154	86	57	17	252
	% all	49%	27%	18%	5%	
	% individuals	50%	30%	17%	2%	
	% organisations	46%	21%	20%	13%	
Q9.2A: Should farm assurance be linked to requirements for future support?	No. of all	114	95	82	23	222
	% all	36%	30%	26%	7%	
	% individuals	40%	29%	26%	4%	
	% organisations	27%	32%	26%	16%	

Appendix B: Additional analysis

Given the breadth of responses, the main report focuses on the most common themes seen at each question. The additional analysis in Appendix B includes descriptions of less commonly mentioned themes, and lists of points or suggestions made by respondents.

Baselining

Q1.1: Should agricultural businesses receiving support be required to undertake a level of baseline data collection? Please explain your answer.

Less commonly mentioned themes

- Some respondents argued that the baselining process must not penalise those who have already made positive environmental progress.
- A few respondents called for voluntary collection, and for consideration to be given to who owns, accesses and uses the data. However, there was also recognition that voluntary schemes may not attract sufficient numbers. Two suggested a two-tier scheme where initial support is not dependent on data collection.

While it was not directly requested, some respondents suggested types of data that should be part of the baseline collection. These included:

- Carbon audits, overall carbon footprint (that also include carbon footprint of animal feed, housing and transport), net carbon balance, carbon capture through soil improvements and grassland sequestration
- Biodiversity indicators, local wildlife habitats and baseline habitat maps.
- Soil testing and analysis including Soil Organic Matter (SOM), bulk density, pH and nutrient management. One respondent suggested using satellite biomass imagery to monitor and adjust Nitrogen applications.
- Water quality and pollutants
- Natural regeneration of plant, scrub, hedge and tree growth to mitigate against drought and fire
- Sustainable food production
- Health-giving access for humans - paths, signage, natural not engineered
- Socio-economic characteristics (e.g. processes, policies, standards) and land management practices and associated resources (e.g. fertilisers, energy, crop protection measures)
- Wild animal welfare and stock animal health and welfare plans, including livestock breeding and management plans. Specifically mentions of implementing the 7 principles for wild animal welfare and outcome-based animal welfare indicators including those relating to the five domains model, the opportunities for positive experiences, and qualitative behavioural assessment (QBA).
- Land use change. One suggested a simple map-based, record of the land, its soils (with sampling), monuments, habitats and biodiversity

- Energy generation
- Forage and manure analysis
- Chemical inputs e.g. fertiliser, herbicides, insecticides, sheep dip
- Fuel consumption per hectare
- Record area of farm not used productively
- Length of hedgerows on each farm

Q1.2: Should collected data be submitted for national collation?

Q1.3: What information should be collated nationally? Please explain your answer.

Other types of information to be collated

In addition to carbon and other emissions, biodiversity and soil, respondents made a variety of suggestions for information which should be collected, both at Q1.3 and other questions. It should be noted that, while the question asked which data should be collated nationally, it is not always clear whether respondents are suggesting information for data collection, or for national collation.

Sequestration was mentioned by some respondents, mostly in the context of soil carbon, but it was also felt that it should include data on woodland, agroforestry, grassland, hedgerows and peatland restoration.

Some also suggested **water quality**, but did not provide any additional detail on this.

Other suggestions, made by small numbers, included:

- A small group of respondents made a similar call for measures to help better understand the wider social and economic role of farming. This includes information on land ownership, employment, training and wider public engagement
- Livestock management, animal health and welfare including medicine use
- Flood and drought management
- Use of fertiliser, pesticides, plant protection products
- Home-grown and imported feeds e.g. soya beans
- Crops planted, seed used, harvest output / yields / productivity, mixture of cover crops
- Use of manure, slurries and sludge including methane emissions
- Land use
- Ploughing and tillage activities
- The scale of shrub, tree and woodland assets on the croft or farm and their condition
- Weather patterns
- Wader and wetland management

- Air pollution
- On-farm wastes e.g. volumes of managed manures and slurries, volume and composition of crop residues, volume of food and crop waste

Data already collected

A small number gave examples of where data already exists which could be used or collated more effectively. These included:

- Cattle and sheep data from ScotEID/SAMU
- Carbon audits carried out under the Beef Efficiency Scheme
- Industry soil maps, Centre for Ecology and Hydrology land cover maps, the long-running Countryside Survey, BTO's Breeding Bird Survey
- The agricultural census and annual SAF, the latter of which records land use and livestock numbers
- Animal Health Plan data which may be collected by livestock farmers for farm assurance purposes.
- Integrated Pest Management Plan which may be collected by farmers for farm assurance purposes.

Q1.4: What are the next steps that can be taken to commit businesses to continuous improvement utilising the information presented by carbon, soil, biodiversity auditing? Please explain your answer.

Less commonly mentioned themes

- Some respondents highlighted improved soil analysis as a vital next step.
- Greater enforcement through regulation and legislation was suggested by some.
- Some felt steps to introduce farm assurance or certification would create an incentive to make improvements to practice. The role of farm assurance is covered in more detail in Chapter 10.
- Using aggregated information to set clear policy objectives and targets, or to inform wider policy more generally was called for by a few respondents.
- A small number questioned what is meant by continuous improvement and how it can be achieved. One argued that once a farmer has met their target, that should be all they need to do; others reflected on diminishing returns and that it will become harder to demonstrate continuous improvement over time. A few argued that businesses should not be penalised in these instances.
- A few highlighted the potential role of technology and innovation in data gathering.
- Three called for a move to plant-based farming.
- Two suggested closer ties with research institutes.
- Two called for reducing or stopping food imports.

Q1.5: How can baselining activities be incorporated into common business practices across all farm types? Please explain your answer.

Less commonly mentioned themes

- Some misinterpreted the question and suggested actions which did not relate to baseline activities. These are listed in below. Similarly, some commented on the role of the baseline; these themes were addressed under Q1.1.
- A small number argued that supply chain, market or consumer pressure might encourage farmers to adopt better practice and drive change.

Example approaches

Specific examples of approaches which could help baseline activities be incorporated into common practices included:

- Using an approach similar to the English SFI (sustainable farming incentive) system
- Practical demonstration through Change Focus Farms and Monitor farms
- Echoing the current Basic Payment Scheme
- Small discussion circles such as those sponsored by CAFRE in Northern Ireland, giving support to all involved
- Deriving approaches to soil sampling from work proposed in the 2022-27 Strategic Research programme on Large Scale Modelling [Topic Line C5], and the Underpinning National Capacity Function 9 on Soils and related environmental data: collection, management, application, dissemination and governance
- The farmer-led QMS / AHDB monitor farm benchmarking programme is a good example of sharing knowledge so that the systems operated by the top performers are replicated more widely.
- A functioning agricultural knowledge and innovation system (AKIS) which is designed to support nature-based solutions to climate change, managing land for wildlife and the delivery of public goods, as well as growing and providing healthy and nutritious food.
- LEAF's Integrated Farm Management (IFM) framework which allows for baselining activities to be included across all farm practices.
- The Livestock Performance Programme (LPP) which is making additional use of existing livestock traceability data within ScotEID that can provide valuable herd insight to improve business and environmental efficiency. SAOS note they are introducing features to support trend analysis and nudge techniques that will help producers more actively engage with derived charts and tables, leading to greater impact.

Other actions

Across Q1.4 and Q1.5, some respondents suggested actions or improvements which farms could undertake which did not relate to baseline data collection. These included:

- Setting aside land for woodland; planting hedges.

- Crop rotation e.g. two year rotational legume and herb mixtures.
- Establishing fallow areas and environmental crops.
- Regenerative grazing and more use of home produced grass fed livestock.
- Creating naturally functioning river corridors, by re-establishing riparian woodlands and wetlands.
- Diversification.
- Setting aside a proportion of land dedicated to carbon capture.
- Removing livestock from farms.
- Grassland sequestration.
- Reviewing animal diets and breeding to reduce methane emissions.
- Measures to reduce fuel and power consumption.
- Phasing out industrial farming.

Capital funding

Q2.1: Should capital funding be limited to only providing support for capital items that have a clear link to reducing greenhouse gas emissions? If not, why not?

Less commonly mentioned themes

- Calls for capital funding to consider or give priority to whole farm approaches were made by some respondents; a few felt this could reduce opportunities for pollution swapping where an improvement in one area could lead to a deterioration in another. Related to this, a small number suggested funding for collaborative proposals e.g. groups of neighbouring farms who could share equipment.
- A few called for reassurance that any funding does not disadvantage those who have already invested in steps to reduce emissions, or go to wealthy landowners.
- Only 25 of the 83 respondents who agreed with question left an open comment. Around half of these comments expressed support for limiting funding to reducing emissions due to the urgency of tackling the climate crisis.

Other environmental issues which would benefit from capital funding

Many respondents raised a variety of environmental issues which capital funding could address, including:

- Soil health
- Air and water pollution (including fencing off water courses)
- Animal health and welfare, including antibiotic resistance
- Peatland restoration
- Carbon sequestration
- Using less chemicals, fertilisers and pesticides

- Reduction in food miles
- Renewable energy production
- Slurry storage and application

Other uses for capital funding

The range of other potential uses of capital funding raised by many respondents included:

- Sustainable food production and food security
- Support for young farmers and addressing a labour shortage
- Improving farm working conditions and health and safety
- Support for an ageing workforce
- Support for heritage breeds
- Ensuring safe public access to the countryside
- Maintaining and developing rural communities
- Conservation of historical assets

Q2.3: What capital funding should be provided to the sector to assist in transformational change, particularly given that in many instances the support called for was directly related productivity or efficiency, that should improve financial returns of the business concerned?

Less commonly mentioned themes

- Funding to bring social benefits was suggested by some. Examples included: population retention; housing; employment; addressing labour shortages; promoting health and safety; and fostering 'equity among food producers, rural communities and citizens.
- Some highlighted supporting diversification into areas including eco-tourism, cut flowers, oat milk production, outdoor education, and public access to farms.
- A recurring theme was a request for funding for education, training or knowledge exchange, data gathering and analysis/modelling or research and innovation.
- Some respondents highlighted the challenges to accessing funding that are faced by smaller scale farms, crofts and community growers, new-entrant farmers or those farming in less favoured areas. Equality of access and means tested funding to address this was called for by some.
- The importance of having a clear definition of "transformational change, and of linking funding to wider governmental policy objectives and legal regimes, was called for in a few comments. So too was and the need to clearly communicate the links between policy objectives and capital funding, to both farmers and the wider public.
- A small number argued against providing any capital funding to farmers.

Examples of funding schemes

Examples of previous funding schemes - both those perceived to be successful and unsuccessful - were also shared in some comments.

New Entrant Capital Grant Scheme (NECGS)

Respondents cited this as an example of a well-targeted grant that helped individuals and businesses develop.

Crofting Agricultural Grants Scheme (CAGS)

While one respondent highlighted this was a functional and targeted grant, they also recommended that it 'adapt gradually' to meet future requirements, such as support of sustainable land use, reducing GHG emissions and protecting the natural environment.

Sustainable Agricultural Capital Grants Scheme (SACGS)

A few respondents commented on SACGS. Two praised it as enabling business to purchase items and equipment with long-term benefits to the environment. They also noted it generated an increased pace of change for business that would have been slower to respond without funding. A few provided the following criticism of the program:

- The funded equipment maintained high-input, intensive farming systems that were not universally useful to all farm types and locations.
- Smaller enterprises faced difficulty in accessing the scheme.
- Initial timescales were restrictive.
- Initial rigid cash flow commitments deterred applicants.
- Shortages in the supply of funded equipment.

Respondents suggested there be a major review of the scheme and that in the future the deployment was managed in a clear and controlled way.

Food Processing and Marketing Grant Scheme (FPMG)

One respondent noted that the scheme only funds large food processors who were located far from farms. Another suggested the budget be increased as the current limit was insufficient to stimulate innovation.

The EU "Fruit and Veg Aid" Scheme

This scheme was highlighted as very successful in transforming the Scottish fruit and vegetable industry by one respondent, who also recommended it be extended to farmers of potatoes and cereal.

Agri-Environment Climate Scheme (AECS)

This scheme was lauded for promoting environmentally friendly land use by one respondent. However, they also believed it could put a greater emphasis on improving soil health and create pathways to skills training and knowledge sharing.

Forestry Grant Scheme (FSG)

One respondent noted that this scheme did not appropriately facilitate the integration of trees into farming systems.

Biodiversity

Q3.2: What actions would be required by the farming and crofting sectors to deliver a significant increase in biodiversity and wider-environmental benefits to address the biodiversity crisis?

Less common mentioned actions to address the biodiversity crisis

- Leave stubble fields over winter.
- Consider land sharing/sparing.
- Sequestration including reed beds in areas of water.
- Introduce new, native or rare breeds of livestock.
- Reduced use of farm machinery/vehicles or purchasing more efficient vehicles/machinery.
- Deer management activities.
- Decrease the size of individual fields.
- Learn lessons from activities in the past that promoted biodiversity.
- Reduce muirburn.
- Lessen the use of slurry.
- Combine solar PV installation with continued access for grazing.
- Minimise waste.
- Introducing vertical farming methods.
- Reduce muck spreading.
- Appoint a member of staff with responsibility for biodiversity.

Other ideas that a few respondents suggested could help farms and crofts to enhance biodiversity include the following:

- Raising awareness and understanding of the need for and benefits of change among the public and farmers.
- Stronger legislative action from government to, for example, ban pesticides.
- Addressing challenges around public access to agricultural land and the impact of this, particularly dog walking, on biodiversity.
- Zoning of farms to give priority to nature in more areas.

Just transition

Q4.1: What do you see as the main opportunities for crofters, farmers and land managers in a Just Transition to a net zero economy?

Some respondents at Q4.1 suggested ways in which agriculture could contribute to a Just Transition. Most of these suggestions have been covered in detail at other questions, and so a brief summary of these comments is provided below.

Promoting biodiversity

Several respondents emphasised that farmers, crofters and land managers could use their land differently to promote biodiversity. Suggestions included integrated land management initiatives such as planting trees on agricultural land, establishing hedgerows and contributing to peatland restoration.

Carbon sequestration

Carbon sequestration was highlighted by some respondents. A few noted that farms and crofts already absorb carbon through soil, grass, trees, hedgerows and animals. Others felt that farmers, crofters and land managers could do more in this respect, by planting more trees and hedgerows, for example.

Collaboration

Another theme identified by some respondents was collaboration among farmers, crofters and land managers. Respondents noted it could be beneficial to share learning and to work together towards a Just Transition.

Less commonly mentioned ways to contribute to a Just Transition

- The potential for farms and crofts to produce renewable energy using wind, solar, hydro or wave power, and/or hydrogen.
- Reduced use of fertiliser, pesticides, other chemicals and plastics.
- Use of electric/green vehicles.
- Encouraging native breeds.
- Using less ruminant livestock to reduce methane production.
- Replacing wire fences with natural boundaries or dry stone walls.
- Careful soil management.
- Opportunities for new entrants to contribute to a Just Transition through contract farming or share farming agreements.

Q4.2: What do you see as the main barriers for farmers, crofters and land managers in a Just Transition to a net zero economy?

Less commonly mentioned barriers

Other barriers raised by respondents, from most to least frequently mentioned, included:

- A perception in the agriculture sector that it is being blamed for climate change when many farmers are already taking steps, more so than some other sectors, to help the environment.
- The lack of time that farmers have, and the barriers that this can pose to changing the status quo.
- The increased workload associated with changing practices and lack of staff to support the transition.
- A perception that there is a disproportionate focus on tree planting and forestry at the expense of other actions that can be taken to contribute to a Just Transition.
- Limited evidence as to which activities or adaptations are most effective.
- The need for collaboration among farmers to share learning.
- Scotland's climate, with a short growing season and unpredictable adverse weather that can affect farm production.
- Difficulties in accessing critical infrastructure locally such as abattoirs and recycling plants.
- The danger of being unable to compete on price with imports from countries with less stringent environmental requirements.
- Restrictions caused by planning regulations.
- Shortages of materials and resources including land.
- Difficulties in operating without the use of fertiliser and pesticides.
- Concerns about meeting demand for food among a growing population if production is reduced.
- Lack of alternatives to fossil fuels for farm machinery.

Sequestration

Q5.1: How best can land use change be encouraged on the scale required for Scottish Government to meet its climate change targets? Please explain your answer.

Less commonly mentioned themes

Other less frequently identified themes were also identified across responses:

- To use legislation, regulation and taxation to encourage land use change. Respondents suggested greater enforcement of wildlife law, greater licencing of unsustainable practices, and a Carbon Emissions Land Tax.
- Better soil management. Suggestions included promoting soil biodiversity, minimum tillage and reducing use of fertiliser and pesticides.
- Calls for collaboration including the importance of talking to and working with farmers and crofters was highlighted. The potential for farmers to work together, and for community-led approaches, were also mentioned.
- Some argued for more rewilding, regenerative or organic farming practices.
- For land use change plans to be informed by careful analysis and 'grounded in science'. There were calls for more research into carbon emissions and sequestration to be undertaken before significant land use changes are made.
- Some expressed a negative view of land use change, for example arguing that land use change is not required on a large scale, or at all. Others felt agriculture was being unfairly targeted, and that carbon emissions from other sectors, particularly transport, should be addressed first. A few argued reduced carbon emissions from agriculture should not be used to offset emissions from other sectors.

Small numbers of respondents each raised the following points:

- The need to change consumer attitudes and behaviour, in particular improved education on food production and asking consumers to pay more.
- For land use change to be measured and monitored effectively, using simple, straightforward data collection processes and better carbon auditing.
- Suggestions for controlling deer, including enforcing maximum numbers or culls.
- General calls for land use decisions to consider long-term food production needs.
- Investing in renewable energy, developing solar, wind and hydro on suitable sites.
- Calls for a clear direction from the Scottish Government, providing the policy and climate change targets, avoiding conflicting land-use policies, and establishing the frameworks and funding to achieve the targets.
- The need for a long-term approach, in both the plans and funding for change.
- Diversification of farm businesses.
- That farmers should decide how their land should be used.

Some respondents suggested other actions which could encourage better land use, improve sequestration or more generally meet climate targets. These included:

- Habitat restoration and the use of marginal or low productivity land for biodiversity.
- Drystone wall repairs or removal to improve efficiency and habitats.
- Drainage to maintain land in good efficient order.
- Supporting native breeds.
- Improved fuel efficiency measures.
- Gene editing of animals and crops to reduce greenhouse gas emissions.
- Protecting the rights of tenant farmers, and the continuation of family farms.
- Producing and using local feeds and produce.
- Transition to agroecologically managed livestock.
- Intercropping and polycultures.
- Reduction of off-farm inputs.
- Encouraging short and local supply chains.

Productivity

Q6.1: Would incentives for farm plans specifically targeting flock/herd health, soil health, & crop health (for example) demonstrate real improvements in productivity over time? Please explain your answer.

Less commonly mentioned themes

- Some questioned using public funds to incentivise productivity, suggesting there was no need to pay farmers for something that was in their best financial interest.
- A small number felt consumers should be eating less meat or would be eating less meat in the future. They argued that farms should move away from livestock farming in favour of agricultural crops that meet changing consumer demands.

Q6.2: Should future support be dependent on demonstration of improvements in productivity levels on farm? If so, how would this be measured?

Suggested productivity measures

Several respondents suggested categories of productivity to measure. These included:

- Crop output per hectare or per emissions rate.
- Quality of crops and meat; health of crops e.g. consistent crop yields.
- Health and welfare of herds e.g. death rate, days to slaughter, weight at slaughter, fertility indices and medicines usage.
- Efficiency measures e.g. business reviews, farmer quality of life.
- Use of advanced techniques e.g. rotational grazing, drought-tolerant species.

- Soil health figures e.g. VESS (Visual Evaluation of Soil Structure) scoring, lime application, GPS maps of nutrients.
- Enhanced biodiversity indicators.
- Organic farming measures e.g. reduction of fertilisers, insecticides and herbicides.
- Carbon capturing and carbon auditing with baseline emissions measurements.

Research and development

Q7.1: In light of ongoing research activities supported by the Scottish Government and the 2022-2027 research strategy, are additional measures needed to ensure research is supporting the agriculture sector to meet its climate change targets?

Less commonly mentioned themes

- A few respondents noted the need for interdisciplinary and international research exchange. They suggested that governments share data with each other, but also called for collaboration between different research branches such as social, environmental and economic science, to ensure there is a thorough understanding of how to move toward sustainable farming and of how to implement change.
- Support for creating national baselines, data collection and monitoring of implemented changes was considered necessary in the research and development process by a few respondents.
- A small number noted their support for the Farmer Led Groups' suggestions.
- A few respondents expressed a view that funding research and development on greenhouse gas emissions on farms was a waste of public money which should be tackle emissions in more polluting industries.

Knowledge and skills

Q8.2: What form should tailored, targeted action take to help businesses succeed?

Other actions

Other actions suggested by small numbers of respondents included:

- Funding experimental and innovative pilot projects.
- Industry-wide target-setting and benchmarking.
- Introducing incentives for farmers who participate in CPD and sanctions for those who do not.
- Consultation and research with business owners within the agriculture sector.
- Including farmers in government-level policy planning and strategic decision making.
- More knowledge sharing from academic and research institutions.
- Supporting individual farms to conduct a skills audit; identifying areas where training, upskilling and CPD would be most effective.

Appendix C: Sectoral classification

Given the range of sectors represented by respondents, analysts created a broad level of classification for analysis purposes. Respondents were assigned to one of the categories below based on the nature of their organisation.

Table 1: Sectoral classification

Sector	Number of responses	% of all responses
Individual	224	71
Organisations	90	29
Agriculture or food	36	11
Animal health or welfare	4	1
Environmental	16	5
Farm Businesses	16	5
Other land use	6	2
Other / miscellaneous	12	4

Of the 224 responses from individuals, 11 left an organisation name which meant they could be identified as a farm business. While this means 27 responses were received from farm businesses (9%), it is not possible to establish how many other individuals represented farm businesses.

Appendix D: Consultation questions

Baselining

Q1.1: Should agricultural businesses receiving support be required to undertake a level of baseline data collection? Please explain your answer.

Q1.2: Should collected data be submitted for national collation?

Q1.3: What information should be collated nationally? Please explain your answer.

Q1.4: What are the next steps that can be taken to commit businesses to continuous improvement utilising the information presented by carbon, soil, biodiversity auditing? Please explain your answer.

Q1.5: How can baselining activities be incorporated into common business practices across all farm types? Please explain your answer.

Capital funding

Q2.1: Should capital funding be limited to only providing support for capital items that have a clear link to reducing greenhouse gas emissions? If not, why not?

Q2.2: What role should match funding have in any capital funding? Please explain your answer.

Q2.3: What capital funding should be provided to the sector to assist in transformational change, particularly given that in many instances the support called for was directly related productivity or efficiency, that should improve financial returns of the business concerned? Please explain your answer.

Biodiversity

Q3.1: Should all farm and crofting businesses be incentivised to undertake actions which enhance biodiversity?

Q3.2: What actions would be required by the farming and crofting sectors to deliver a significant increase in biodiversity and wider-environmental benefits to address the biodiversity crisis? Please explain your answer.

Just transition

Q4.1: What do you see as the main opportunities for crofters, farmers and land managers in a Just Transition to a net zero economy? Please explain your answer.

Q4.2: What do you see as the main barriers for farmers, crofters and land managers in a just transition to a net zero economy? Please explain your answer.

Sequestration

Q5.1: How best can land use change be encouraged on the scale required for Scottish Government to meet its climate change targets? Please explain your answer.

Productivity

Q6.1: Would incentives for farm plans specifically targeting flock/herd health, soil health, & crop health (for example) demonstrate real improvements in productivity over time? Please explain your answer.

Q6.2: Should future support be dependent on demonstration of improvements in productivity levels on farm? If so, how would this be measured?

Research and development

Q7.1: In light of ongoing research activities supported by the Scottish Government and the 2022-2027 research strategy, are additional measures needed to ensure research is supporting the agriculture sector to meet its climate change targets? Please explain your answer.

Knowledge and skills

Q8.1: What importance do you attach to knowledge exchange, skills development and innovation in business? Please explain your answer.

Q8.2: What form should tailored, targeted action take to help businesses succeed? Please explain your answer.

Q8.3: Should continuing professional development be mandatory for businesses receiving public support funding? Please explain your answer.

Supply Chains

Q9.1: How can the green credentials of Scottish produce be further developed and enhanced to provide reassurance to both businesses and consumers? Please explain your answer.

Q9.2A: Should farm assurance be linked to requirements for future support? Please explain your answer.

Q9.3: How can ongoing data capture and utilisation be enhanced on Scottish farms and crofts? Please explain your answer.



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